

Bob Cooper's

SEPTEMBER 15 2004

# SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

## IN THIS ISSUE

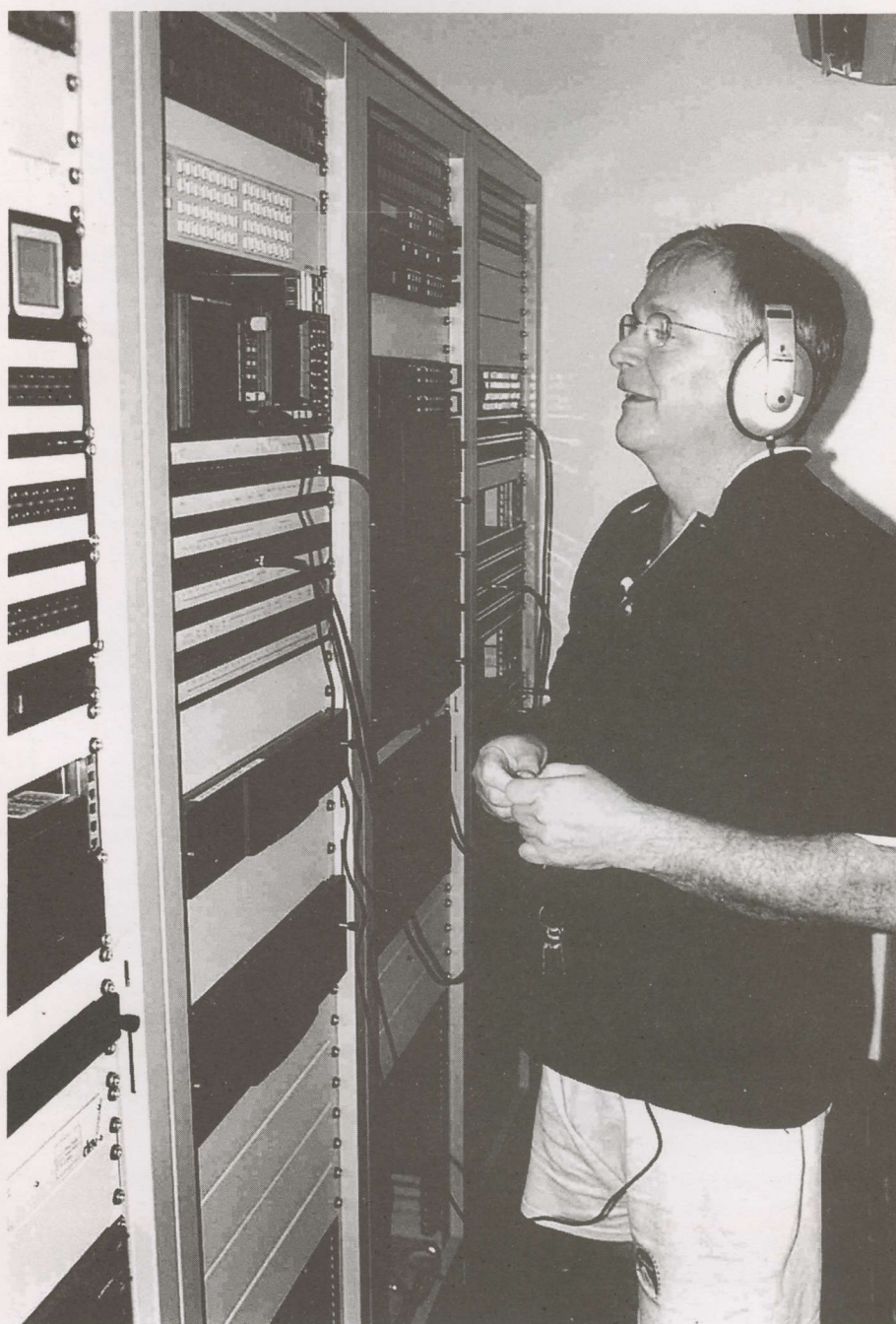
**FIJI wins case:  
Sky Pacific will  
be on NSS-5!**

**3.4 GHz Unwired  
death to C-band  
in Australia?**

**Dubai Sat Market  
closed down  
by police**

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ As4/Tel 18 activity
- ✓ Observer Reports

Vol. 10 ♦ No. 121  
Price Per Copy:  
NZ\$10/A\$11/US\$/Eur8





# Hualin Pty Ltd

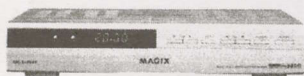
Satellite Equipment Specialists  
Import and wholesale

Unit 51/159 Arthur ST Homebush West, Sydney Australia 2140  
Phone: (02) 9763 1366 Fax: (02) 9763 1356  
Email: sales@hualin.com.au Web: www.hualin.com.au

For all prices, product information and banking details please visit the website or phone us.

## Specials this month

### Magix 9800 - Digital Receiver



- New Generation DiSEqC 1.3
  - Universal LNBF using DiSEqC
  - Smart Code System (Soft Patch)
  - User Friendly
- Price: \$190 AUD + GST

### Satlook - Signal Meter



- Digital, Analogue and combined versions available
  - A must for the professional
  - Simple menus and functions
- Price: Phone up for Quote

### DreamMAX - DT470



- Irdeto embedded
  - 4900 Channel Memory
  - DiSEqC 1.2
  - User Friendly
- Price: \$200 AUD + GST

## Everything? Yeah we got

### LNBF

- Zinwell C Band
- Zinwell KU Band
- MTI C Band, Superhigh gain
- One Cable Solution - CBand
- Dual Output KU 11300 MHz

### Positioners

- Superjack EZ-2000
- Superjack DP-6600, DiSEqC 1.0/1.2
- Technosat DP-200, DiSEqC 1.2
- Manual Actuator Driver - EW101
- SAP 2000: 99 Memory positioner

### Actuators

- Superjack HARL-3618, 18" Actuator
- Superjack HARL-3624, 24" Actuator
- Superjack DG-120, H/H Mount

### Receivers

- SuperNET CA, Irdeto Embedded
- Success. Free-to-Air
- Dion DT-370, Free-to-Air Receiver
- Dion 2x CI, Hardware AllCAMed
- ChangHong, Mediaguard embedded
- SuperNET Terrestrial, DVB-T
- Phoenix High Definition STB

### Dish and mounts

- 1.2, 1.8m Solid Prime focus
  - 45, 60, 65, 85cm KU dish Offset
  - 2.13m, 2.27m, 2.4m, 3.0m, 3.07m, 3.7m, Mesh Dish, Light and Heavy
- Duty PSI and JOYSAT Available

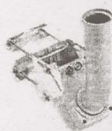
- CBand Wall brackets
- CBand Concrete mounts and stands
- KU Gutter mounts
- KU Wall mounts
- KU Float mounts
- KU Tinroof mount

### Dion 818 CI - Digital Satellite Receiver



- Slim Size and User Friendly OSD
- 2x CI (Common Interface) slots
- Hardware AllCAMed

### SuperJack H-H Actuator, DiSEqC embedded



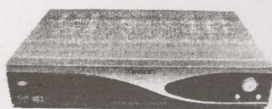
- All it takes is one coaxial cable....
- NO MOTOR CABLE REQUIRED
- DiSEqC Positioner EMBEDDED!

### Supernet - Terrestrial DVB-T



- Digital Terrestrial Receiver
- Slim Design
- High Quality Picture
- Easy to install and use

### Magix 9200A - Digital Satellite Receiver



- FTA + Software Patched
- FAST BLINDSCAN TECHNOLOGY
- DiSEqC 1.0/1.2 Compatible

### Switches and Splitters

- 2 and 4 way DiSEqC switches
- 0/22kHz switches
- 2 and 4 way cable splitters
- V/H Multiswitch
- 0/12V Switch

### Cable - 15m, 25m, 305m packs

- RG6-U Dual Shield Coaxial Cable
- RG6-U Quad Shield Coaxial Cable
- Cat5 Actuator Cable

### Plugs

- F Connectors, Screw or Clamp types
  - Cable joiners
  - AV Splitters
  - Cable Strippers
  - Cable clampers
  - Various other joiners and accessories
- e.g. RCA/SCART cables and converters

### Misc

- 2.4GHz AV Sender
- Irdeto 2.06B CAMs
- Satlook Digital Signal Meter
- Satlook Analogue Signal Meter
- Satlook Digital + Analogue combo
- Satellite finders
- Angle level measure instrument
- High Quality Compasses





# SatFACTS MONTHLY

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is published 12 times each year (on or about the 15th of each month) by Far North Cablevision, Ltd.

This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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## The fine print

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our ELEVENTH year!

## COOP'S COMMENT

A happy chappy. His name is Ken Clark, and he is the CEO (Chief Executive Officer) for Fiji TV. His smiles are genuine because on August 23 the Amsterdam (Netherlands/Holland) Court of Appeals ruled in favour of his "Breach of Contract" suit brought against New Skies Satellites, NV. Fiji TV has the "transponder" and home on NSS-5 which it had elected back in March of this year but which New Skies attempted to void.

1,113,900 people - never before allowed the "choice" of small-dish Ku-band DTH, will now have satellite delivered television in approximately 20 "mid-Pacific" nations. It is the last piece in the DTH "jig-saw puzzle," as we report in detail starting on page 6 in this issue.

TARBS got in the way. So did Intelsat and New Skies and many others. But Fiji TV persevered, went through a demoralising court decision which they lost during June and moved on to a Court of Appeals hearing in August. And they won.

SatFACTS calculates that 222,000 new households will now have the choice of small-dish DTH, in a portion of the world where television has at best been a fleeting object. Samoa's 42,800 homes (Western Samoa and American Samoa) are representative. Western Samoa has one government operated TV channel (VHF, band III) which stays lit 24 hours a day, but on average 17 hours daily repeats CCTV-9 (the English language channel from Beijing). Fiji TV will drop 12 English language channels into Western Samoa on dishes as small as 0.62m. American Samoa, "next door," has a 30 channel tape and satellite fed cable service where for US\$30 a month you can receive 12 of these channels (all 30 costs double that). Somehow, watching two-week old San Francisco-made tapes of sporting events long over makes a mockery of television's "instant connection world-wide" capability. Fiji TV will compete here with 0.8m dishes for the hearts, minds and TV expenditures of 10,000 homes.

As our tables relate on p. 7, from tiny Tokelau to burgeoning Fiji, there will be significant business and professional opportunities for those savvy enough to play in the game. But larger than the business side, there are social and political ramifications that only time will distil. Television may not be the be-all, end-all "cure" to what ails isolated island nations such as Nauru, but it has the immediate prospect of making this vast region see itself as a partner in regional development and a participant in what has to now been a far-away and distant world. With suitcase sized portable uplinks and video by Internet links, what happens on Tuvalu today will instantly be a part of what viewers in Honiara share over Kava tonight. And for the first time in history, isolation will be a thing of the past.

## In Volume 10 ♦ Number 121

Fiji TV wins a big one - NSS-5! -p. 6

"UNwired" is UNhealthy for Australian C-band reception -p. 15

Technical Parameters of UNwired terrestrial service -p. 20

## Departments

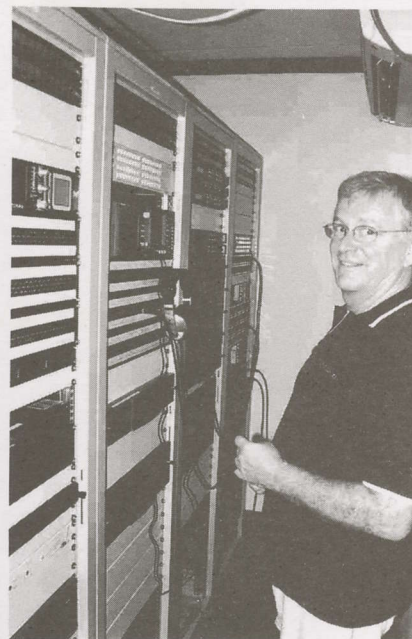
Programmer/Programming -p.2; Hardware/Equipment Update -p. 4; Technical Topix (Multiple receivers; UNwired technology) -p. 20; SatFACTS Digital Watch -p. 23; Supplemental Data -p. 26; With The Observers -p. 27; Scratchi (The "China-Store") -p. 31

## -On the cover-

Fiji's brand new Sky Pacific is much more than extension of Suva television into the outlying islands (Ken Clark, CEO of Fiji TV). It is step-one towards bringing together the entire mid-Pacific region. - p. 6



September 15, 2004





PROGRAMMER  
PROGRAMMING  
PROMOTION

## UPDATE

SEPTEMBER 15, 2004

**Good bye to Dubai?**

"My annual trip to Dubai, satellite heaven for folks who want to see in one place everything there is in the satellite world. No more! I have just been there and it was a disaster, visiting 20 shops in the so-called 'Souk'. Apparently local police had visited all of the shops two weeks before my visit and issued some sort of warning concerning the sale of certain items. Example: Fortec Star dealer refused to even sell their Lifetime or 5100 models. CAMs? Forget it. Software mods? Hahh! The dealers were all too frightened to talk with me. The world's number one satellite equipment market is a ghost town. Rumours of what happens next were everywhere - maybe a move to Sharjah (a neighbouring sheikhdom of the UAE). Perhaps to Kuwait or Bahrain. The police crackdown early in August actually arrested some dealers for 'crimes' nobody could detail. RIP Dubai's Souk!"

ML, Asia

Iraq is looking for new business opportunities.

**SA-20 identification**

"SF#120 (a great issue!!!) listed the inline amplifier 'winner' as the SA-20 from an 'unknown' supplier (p. 12). It is Zinwell, and the product is in their current catalogue."

Archie, NSW

The inline amplifier report has attracted more feedback than anything published in recent times. No, we are not sure why; perhaps because it debunked the myth that "signal gain" is a placebo to all that ails a too-small dish.

**INOSHITU**

"Tim Heinrich's plan to create and import 0.0 noise figure dB LNBS under the INOSHITU brand (SF#120, p. 30) was hilarious! He is a very funny person and as a fellow traveller in the 'INOSHITU' world it is so true! I think we would be instant friends."

Garry Cratt, Av-Comm Pty Ltd

Tim's own comment after seeing it in print was, "I was still chuckling hours after reading it in SatFACTS." The truth is often stranger than fiction.

**UBI? Pacific?? Fiji TV???** Will the REAL provider of mid-Pacific TV please stand up to be counted??? As much as some might like to believe that TARBS will be reborn as a new service (perhaps on Optus/SingTel B3), the odds of this happening seem very long. In fact, ex-TARBS subscribers, left with dust collecting Taiwan built IRDs, have run in quantity to C-band dealers for access to their favourite channels which are - at best - erratic and unlikely to be "there" in a week or months time. None the less, UBI continues to shove new programming channels onto (and take off of) B3 in a format that defies logic. The apparent facts are as follows: (1) TARBS is bankrupt, in court; (2) *Some* of the assets, *perhaps* including their uplink and control room/processing equipment, *may not be* included in the asset list - which means the owners cleverly siphoned off this equipment to get it out from the bankruptcy proceedings; (3) It is this equipment which UBI et al would like to use for their reborn TARBS on B3 (or as Pacific Broadcast Service/PBS on Intelsat 701). Will the courts allow this happen? And how does UBI manage to get back the claimed 60,000 TARBS subscribers and their subscriber equipment which will be essential to restarting their service. And - if they were unable to pay PanAmSat for transponder space, how and from where does the money originate to pay Optus/SingTel for B3 space? A bad business plan is a bad business plan no matter which satellite you use. *Stay tuned?* Well, yeah - if you have nothing better to do with your life.

**TVNZ** through Waiatarua/Auckland has changed test parameters for COFDM on-going experiments; currently 8k carriers (previously 2k), 1/32 guard interval (previously 1/8), 3/4 code rate, 64-QAM modulation. Steve Johnson reports, "as of 1 September DTT-TV One, DTT-TV2, DTT-F2 Deutsche Welle and DTT-FV3 CCTV9 - nice, clean video!" New Zealand government is expected to release its plans for how digital will implement (and eventually replace) terrestrial analogue before end of calendar year.

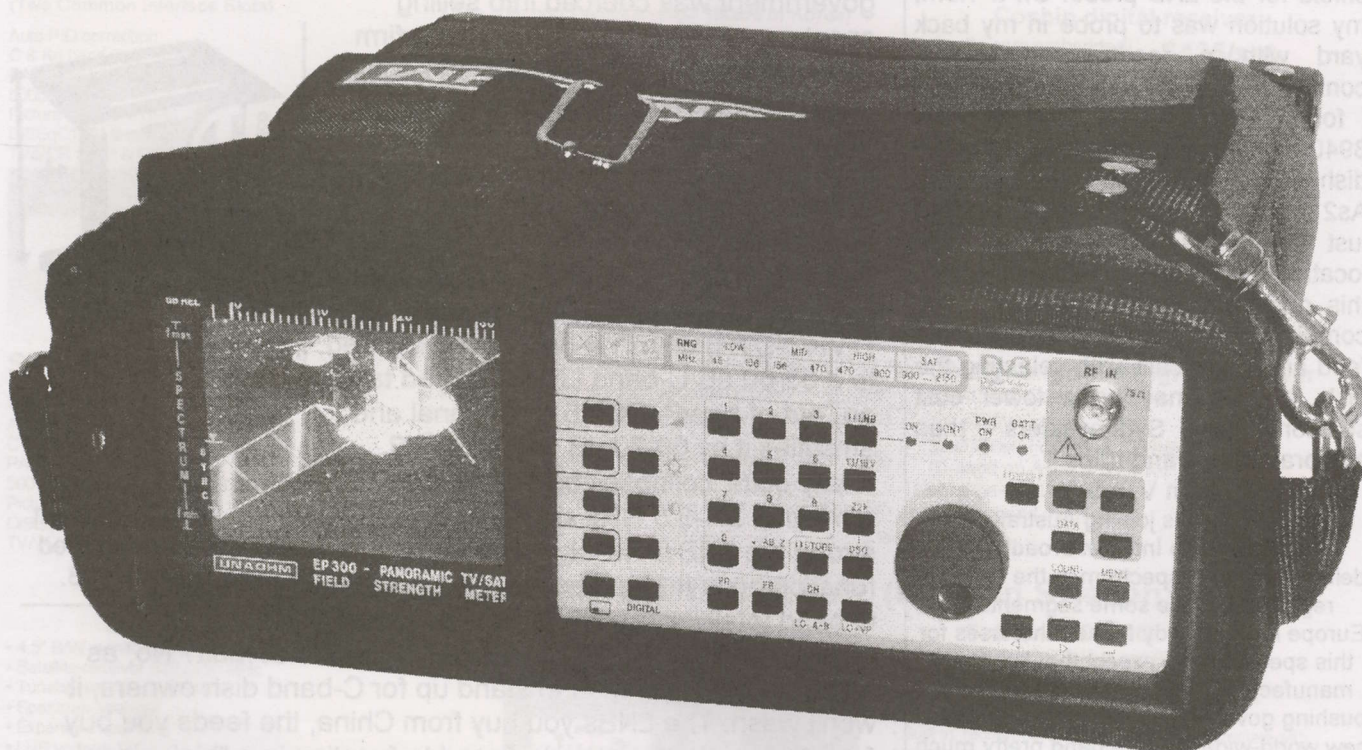
**Australia ABC** has reworked budget and found \$2m to spend (per year) in resurrecting ABC Kids and Fly (channel services). Plan is for children's programmes to run 10AM-3PM daily and to complete broadcast day with reshewing of "time-shifted" existing ABC shows plus something they call "broadband Internet content." Scheduled restart date is March 2005.

**Popular [www.apsattv.com](http://www.apsattv.com)** (NZ based) website ran into server problems late August/early September, may be using replacement facility housed in (of all places) building holding remnants of TARBS when back up and running.

**Solar outage.** Alignment of Clarke orbit belt and sun, during September Equinox, will cause loss of C and Ku satellite signals for several minutes per day per satellite September 10-30.



# The first Digital meter FOXTEL Approved.



Analogue and Digital, BER and MER, QPSK and COFDM or QAM for DTH, MDU, MRE, MATV, SMATV or UBB work, the challenges new technology bring to your tv measurements are many.

The new EP300 TV meter is a better TV meter and the first to be fully approved by Foxtel for all types of TV work.

Faster responses to Digital measurements and calibrated digital MER are among the features of the EP300. Not to mention instantaneous spectrum analysis and outstanding Analogue TV measurements.

Improved Data Logging and newly precise Spectrum measurements round out the features of an instrument that is even built better.

Give your customers the measure of a lifetime - with an EP300 from Laceys.tv

## EP-300 faster true BER for QPSK COFDM QAM.

Sole and exclusive Australian distributor:

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### Clean-Green approach

"I have sympathy for C-band dish users suddenly experiencing terrestrial interference in the Sydney area. I have lived with a strong cross-country 4 GHz link centred around 3940 MHz for years. On my 3m, I could not receive AsiaSat 2's Euro Bouquet until I replaced the feedhorn with a unit designed and manufactured by Av-comm - it features an extra deep outer 'shroud' on the feed proper, which acts as a shield for the LNB probe. On a 1.8m, my solution was to probe in my back yard with a feedhorn and LNB connected to a signal level meter until I found a spot where there was no 3940 signal apparent. By placing the dish in this house-shielded location, As2 and the Euro Bouquet worked just fine although moving the dish location just a few inches away from this one point was a disaster. The combination of a shroud-protected feed and more care with selecting the dish location may be a lower cost solution for Sydneysiders than elaborate filters and traps."

John V, NSW

New Zealand is joining Australia in turning over to Internet broadband delivery services spectrum in the 3.4 GHz region and while some segments of Europe have already found other uses for this spectrum, we expect that hardware manufacturers such as Ericsson will be pushing governments hard to make this a new world-wide service band pretty much following Australia's pioneering lead.

### Scratchi?

"Is there a prize for the first person to identify by name the individual who is creating the new 'Scratchi' commentary column in SatFACTS?"

IF, Queensland

Some history on the column title. Immediately following WW2, American ham radio magazine CQ welcomed the return of amateur radio operations (forbidden during the hostilities) with a new monthly column under the title 'Scratchi'. The writer, never identified in the ten+ years it appeared, was obviously someone from the upper echelon of ham radio ranks, with spot-on insider information on the good, the bad and the ugly. Scratchi's insight led to many worthwhile changes in the way the hobby was conducted and its strength was that nobody, possibly not even the editor of CQ, knew his (or her) real identity and therefore could bring no unseemly pressure to bear on the originator. With luck, ten years from now, our Scratchi will be equally influential.

## HARDWARE EQUIPMENT PARTS

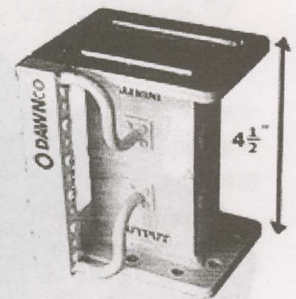
## UPDATE

SEPTEMBER 15, 2004

**Big time bastards?** Not really although it might be "editorially correct" to "demonise" (as IF from Queensland urges us) the folks at "UNwired" who have turned the Sydney region C-band direct reception world upside down. The facts. (1) Australian government was coerced into selling spectrum (3.4-3.5 GHz initially) to a firm (now calling itself Unwired) which seeks to make high speed, "broadband" Internet service available to consumers using a microwave wireless link technology. (2) The technology places 1-10 watt transmitters on hill and building tops, depending upon LOS (line of sight) to function. (3) A typical C-band (TVRO-DTH) dish, 1.4-3m in size, married to a 55-60 dB C-band LNB and feed takes an "out of band" 3.4-3.5 GHz signal and amplifies it by 60-70 dB. (4) *The LNB totally quits*; collapses because the terrestrial 3.4-3.5 GHz signals are so strong the LNB is no longer capable of functioning in their presence. End result? C-band totally stops or perhaps becomes erratic because of LNB "overload." So who's at fault? No, as much as we might wish to stand up for C-band dish owners, it won't wash. The LNBs you buy from China, the feeds you buy from China, were never designed to function in a "high signal environment." The so-called "extended band" LNBs that cover 3.4 - 4.2 GHz are actually operating *within* the new Unwired band. And these terrestrial signals are +60 to 70 dB stronger than your puny satellite signals while the 50-60 dB gain LNB was never designed to handle such a powerful input level. How do you fix it? *Can you fix it?* Turn to p. 15. The answer is more positive than you may have hoped!

**Steerable Ku beam/footprint** to be available on

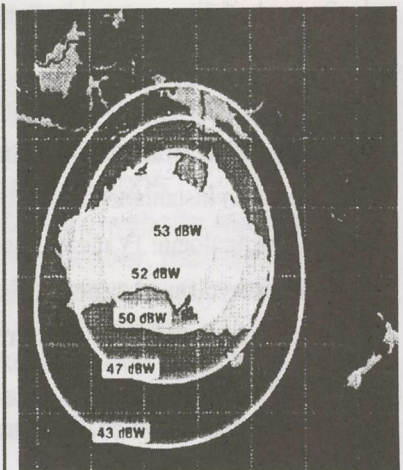
Express-AM3 (at 140E) includes the following coverage possibilities - subject of course to somebody being willing to pay for the transponder space: Boresight Singapore at 46.5 dBw (0.7m) down to 38.5 dBw Darwin (1m). Or, Australia proper from 53 dBw (0.3m) down to 47 dBw at country edges (0.6m) and spillover to NZ of 33 dBw (2m). Satellite to launch "late 2004."



**\$349.00**

C-BANDPASS4

From dawnsat.com - that's US\$\$\$ (!) and it installs between feed and C-band LNB.







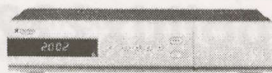
# Phoenix Technologies

Satellite Equipment & Accessories One Stop Supermarket



## Phoenix JT3100T Digital Terrestrial Receiver

- Digital Audio Output (S/PDIF)
- Dolby Digital
- Wide Screen (16:9) Hot-Key
- S-VHS, CVBS & RGB Video Outputs



- Super-Fast Channel Scan
- Electronic Program Guide
- Channel Rename Function
- Software Upgradeable

**\$180/each (for 6 unit)**  
**\$160/each (for 30 units)**

### Magix 8800 Receiver (Made in Korea)

**\$220**

### NextWave 3220 FTA digital receiver (Made in Korea)

C & Ku band input, PAL/NTSC auto converter  
5000 channels Picture in picture EPG  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA outputs

**\$160**

### Coship digital receiver (Iredto V2.09 CAM embedded)

**\$220**

### Optus C1 Aurora Kit Coship digital receiver

(Iredto cam embedded)  
11.3 GHz/Universal Ku  
LNBF, 75cm dish, Mount  
bracket

**\$315/set**

+Aurora card \$75

### SPACE 5300A CI Receiver (Two Common Interface Slots)

Auto PID correction  
C & Ku band input  
PAL/NTSC auto converter  
5000 channels  
Picture in picture EPG  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA output

**\$180**

### NextWave 3220C digital receiver (Two common interface slots) (Made in Korea)

C & Ku band input  
High symbol rate >45,000  
PAL/NTSC auto converter  
5000 channels Picture in picture EPG  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA outputs

**\$220**

### LBC, ART, Al Jazeera Kit Coship digital receiver

(Iredto cam embedded)  
C-band LNBF, 2.3m  
Mesh dish.

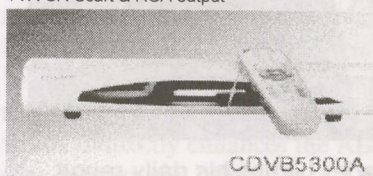
**\$435/set**

+Subscription fee  
\$20/month\*

### Free to air kit (for NSS 6, Optus B3)

Including dish, LNBF,  
digital receiver, etc.

**Start from  
\$250/set**



CDVB5300A

### SPACE 2300 digital receiver

Auto PID correction  
C & Ku band input  
PAL/NTSC auto converter  
5000 channels  
Picture in picture EPG  
DiSEqC1.0/1.2 control  
TV/VCR Scart & RCA output

**\$140**

Iredto 2.06B CAM	\$140	Zinwell C band LNBF	\$35
Viaccess CAM	\$140	Zinwell 10.70/11.3	\$25
65cm offset dish	\$27	/Universal Ku band LNBF	
75cm offset dish	\$40	MTI C band LNBF	\$35
Superjack DiSEqC	\$95	One cable solution C-band	\$50
1.2 motor		LNBF	
Universal Mount	\$15	Satellite finder	\$30
2.1m mesh dish	\$120	Silver Card (10/bag)	\$125
2.3m mesh dish	\$170	Gold Card (10/bag)	\$85
(motorized)		RG6 Stripper	\$20
2.4m heavy duty	\$210	RG6/11 Crimper	\$30
mesh dish			
(motorized)			
1.8m 6 panel dish	\$130	Angle meter (made in USA)	\$85
RG 6 Dual cable	\$75	Compass	\$30
(305m/roll)			



### Changhong 1000 Digital Receiver Aston 1.05 Cam embedded

**Best Value For Indian & French**  
(C-band on Asiasat 3s & Ku  
band on Intelsat 701)  
C & Ku band input, 2000  
Channels.

**\$170**

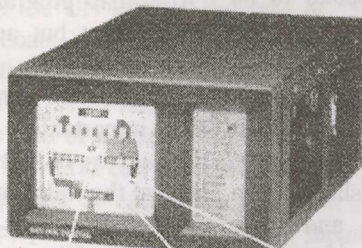
## (Top quality) TESTING EQUIPMENT SPECIAL (made in Sweden)

### Satlook MARK III \$950

- 4.5" B/W monitor for PAL/NTSC/SECAM
- Satellite-receiver 920-2150 MHz
- Tunable sound 5.5-8.5 MHz
- Spectrum analyzer
- Expanded spectrum
- LNB voltage 13/18 V
- 22 kHz tone switch
- KU- and C-band (normal/inverted video)
- Built in rechargeable battery
- Only 3.5 kg complete with carrying-case

### Satlook Digital NIT \$1550

We are pleased to introduce our new SATLOOK Digital NIT. NIT stands for NETWORK INFORMATION TABLE, which today almost all DVB-satellites transmit as standard. The NIT contains information about the Satellite and TV/Radio-channels. It's very easy to identify a Satellite when reading out this information. The different TV/Radio-channels on a transponder can also be read-out.



### Satlook COMBO \$2550

- Input frequency: 2-900 MHz and 920-2150 MHz
- 4.5" B/W Monitor for PAL/NTSC/SECAM
- Lots of memory positions for spectrum pictures
- RS232 for PC-connection
- Built in, rechargeable battery. Only 7kg complete with carrying case
- TV-PART:**
  - 2-900 MHz spectrum analyzer
  - Presents full range spectrum (and expanded)
  - Very high accuracy,  $\pm 1\text{dB}$  (at 20°C)
- SAT-part:**
  - 920-2150MHz spectrum analyzer. Digital BER, QPSK and S/N-ratio
  - Satellite-ID and TV/Radio-channel info (NIT)
  - Tunable audio bandwidth 5.5-8.5MHz
  - LNB voltage 13/18V, 22kHz tone switch
  - DiSEqC according to level 1.0, 1.1, 1.2
  - KU- and C-band (normal/inverted video)

Full range of C/Ku band satellite dish - panel & mesh, prime & offset, from 45cm to 4.5m

Full range of Zinwell, MTI C/Ku LNBF - Dual output, one cable solution, C/Ku combination

Full range of actuator - From 12" light to 36" heavy duty

DiSEqC 1.2 Positioner & SupperJack EZ2000 Positioner

2.4 GHz AV sender and Remote extender

RG6 Cable and Motor cable

Full range of satellite accessories



## THIS MONTH SPECIAL



SPACE 2300A FTA Digital Receiver \$1300/(10 units)

Magix 8800 Digital Receiver \$1200/(6 units)

Phoenix 2.3m Mesh dish \$1650/(pallet of 10 sets)

Zinwell LNBF 15K C-band LNBF \$648/(box of 24 units)

## Come To Us For Your Best Deals

302 Chesterville Rd. Moorabbin VIC 3189

Website: [www.phoenixsatellite.com.au](http://www.phoenixsatellite.com.au)

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E-mail: [sales@phoenixsatellite.com.au](mailto:sales@phoenixsatellite.com.au)



## Fiji's Sky Pacific Start? How do you spell politix???

Make a map of the world, draw the "coverage outline" for each of the world's DTH systems and then cut out the parts to reassemble as a jig-saw puzzle. The last puzzle piece has just fallen in place - "the mid-Pacific" region now has DTH (small dish) satellite television. *Fiji's Sky Pacific is on the air.* The world is now complete.

Television is an awesome tool of social, political and economic change. Canadian sociologist Marshall McLuhan, some fifty years ago, observed, "*The medium is the message.*" The medium is all about shared images, portraits that lay recorded in our minds for eternity, events which virtually everyone you now know or will know in the future also carries locked away. And these images are a common shared event that bind human beings together over time and distance.

Some images are held in short-term memory (few of us will recall, accurately in a year, even the most exciting images of the recently completed Athens Olympics) while others are non-eraseable ("*One small step for man...*"). But even those of short-term retention will impact our lives, become fodder for discussion as we share a cup of coffee with a neighbour or friend, and lead to social discussion. "The medium" truly is "the message." It strikes us inside our home where we let our guard down and are defenceless, as we share its impact with our family and friends, discuss its content, respond to its meaning.

**News item:** The Australian Broadcasting Authority has issued a statement concerning the *continued* television broadcast of the Arabic-language *Al-Manar* channel into that country. *Al-Manar* is alleged to be the television mouthpiece of Hezbollah - "*The mouthpiece of God*" - an Islamic Shia group based in Lebanon with an anti-Jewish and more recently anti-Christian point of view. Hezbollah is credited with many acts of terrorism, world-wide, and *Al-Manar* champions this activity. The ABA, according to the news item distributed late in August, believes "(We) *have no jurisdiction over programs broadcast from outside Australia.*" *Al-Manar* appears on Australia's Optus B1 and telecasts solicit funds ("your credit card gratefully accepted - Praise Allah!") for Hezbollah activities (leading to pundits suggesting, "Send \$100 today and your name will be inscribed on the next baby carriage terrorist bomb exploded in downtown Tel Aviv!").

**News item:** The French Council of State has ruled that *Al-Manar* must henceforth adhere to French law or it will be banned from satellite distribution on Eutelsat. The French ruling was partially based upon the telecasting of a 29 part series titled "*Al-Shatat*," produced in Syria, which included the on-camera murder of a Christian child, at the alleged order of a (Jewish) rabbi, to allow the child's blood to be baked into (Jewish) *matzos* for celebration of Passover. The "message" here was totally fabricated, as far as anyone knows the rabbi was an Arabic actor and the child was neither killed



WHEN the 6PM news reader begins his daily report of the latest events, a social message is delivered to tens of thousands of homes. The impact of what he says, how he says it, is significant. (Fiji One news)

nor injured but the "message" was loud and clear to the Arabic audience to whom it played. *Al-Manar* lawyers soft pedalled the depiction but Lebanon's Foreign Minister defended the network citing his Government's view, "*Al-Manar* programs condemn the policies of the Israeli government but are not racist or critical of Jews or their faith."

*The medium is the message.* *Al Manar* is the message but more important, to the French and Australian governments, is the *delivery* of that message - the medium, satellite TV going beyond the walls either Government can erect.

The last jig-saw puzzle part will fall in place as Fiji's Sky Pacific satellite operation debuts on or about 1 October on NSS-5 (177W). It is described as the "Mid-Pacific region" but if you consider (largely) French speaking Canal + to be a part of the world DTH grid, perhaps the puzzle piece was already in place before Fiji launches satellite service. Or, if you believe that the "language" of the "medium" contains the message - there is no contest. Fiji speaks English and as our table here illustrates (p. 7), so do *most* of the folks who will instantly have first-time-live multiple-channel television courtesy of Sky Pacific Fiji.

Nothing provokes nor incites like the "6PM Evening News." It is a legacy dating back to a man named John Cameron Swayze who, as an experiment, was granted 15 minutes each night at 7:45PM by American network NBC in 1949. Swayze did what no human being had done before; he reported the day's news, with film clips, to millions of homes and when the word entered the living room, "the medium was the message."

Fiji TV One is the newest medium, serving so few people that it can claim the honour of being "the last jig saw puzzle piece." What makes Fiji One unique is that it will speak to,



### The island "nations" of the Mid-Pacific

Caroline Islands - 103,000 (population) ; Cook Islands - 18,000; **Fiji Islands - 787,000** ; Kirabati - 66,000 ;  
**Marshall Islands** - 42,000; **Nauru - 7,000** ; (New Caledonia - 213,000); **Niue - 2,000**; **Norfolk** - 2,000 ; (**American**)  
**Samoa - 44,000** ; (**Western**) **Samoa - 170,000** ; Solomon Islands - 305,000 ; **Tonga - 96,000** ; **Tuvalu - 7,900** ;  
**(Vanuatu - 152,000).**

Within **DTH** service reach (see antenna sizes below): English speaking = 1,113,900 + French 152,000

Within over-sized DTH reach (1.3 - 2.0m): English speaking = 389,000

Within **SMATV** reach (2.1-3m excluding NZ, PNG) English speaking = 105,000 + French 213,000

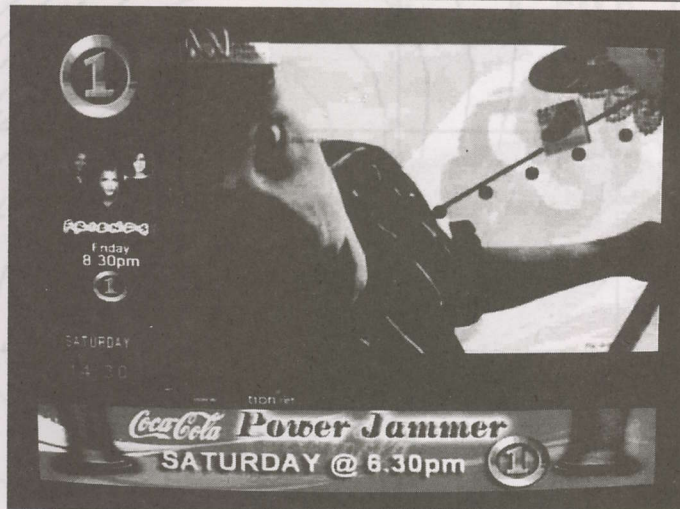
**DTH= 222,000** English households; Oversized DTH = 77,800; **SMATV English** = 21,000

and ultimately for, nearly twenty separate and diverse geo-political regions each with their own internal agenda. Like it or not, the leaders of Tuvalu, Niue, Samoa and other little known, seldom reported mid-Pacific island nations will now find themselves challenged (at home) by the news clips seen daily in their constituency homes via Fiji One's 6PM News Report.

Fiji One, free to air, will be available to the complete footprint (coverage) area served by NSS-5. Up to 11 additional channels will be available only by subscription. Fiji One is a diverse reflection of what Fiji TV finds "economical" (translation: "profitable") to telecast. A significant portion of the broadcast day is ABC Asia-Pacific, which indirectly enhances the ABC service to the mid-Pacific (few viewers can afford the 4-5-6-7 metre dishes required to individually access ABC A-P in this region).

And there are the *political* concerns. China (the country) and Japan are frequent "aid donors" to countries such as Fiji and Samoa. A major sports stadium complex, for the next scheduled "Pacific Games," is underway in (Western) Samoa, largely paid for by China. A similar complex in Suva (Fiji) was also built by China for the 2004 games. China is after a number of "concessions" when they "gift" such multi-million dollar complexes. A vote, in their favour, at the UN is one "string" attached. Access, by Chinese fishing boats, to the 200 mile territorial limit fishing waters is another concession. There are others. (Western) Samoa's national TV is 24 hours per day - 70% of that day is a direct satellite feed of English language CCTV-9 (PanAmSat PAS-8 fed). The world can be judged a very strange place when you are staying at Aggie Gray's in Apia (Samoa) and the only TV reception in your room originates in Beijing, China.

The mid-Pacific is seen by world powers as a "marine resource" - a place to "mine" Tuna and other species for



ABC Asia-Pacific is a significant portion of the Fiji-One (FTA) service, currently. Fiji TV has been profitable (in itself a credit to smart management) for many years and careful manipulation of "rebroadcast TV programming rights" is at the core of that profitability.

transport to distant processing plants. Or not so distant, as in the case of "Starkist" which owns the world's largest Tuna cannery, located in Pago Pago (American Samoa). Fishing rights, inside the 200 mile territorial limit, to be adjudicated by political compromise, is the key that unlocks access for "foreign powers" to the riches of fishing rights. The politicians who control these "rights," country by country, sit in the throne of power - they alone have the ability to say to China or Japan or Taiwan - "Yes - of course your commercial boats can access our shoals and reefs to take the Tuna your fleets require. Here is my direct bank transfer account number!"

### NSS-5 coverage by Sky Pacific

Caroline (Pohnpei) > 2.8-3m

Cook Islands (Rarotonga) > 1.3-1.5m

**Fiji > 0.5-0.6m**

Kirabati (Tarawa) > 1.3-1.5m

Marshalls (Enewetok) > 3.8m+

**Nauru > 1-1.2m**

New Caledonia (Noumea) > 2.2-2.4m

New Zealand (East Coast/North) > 3.6m+

**Niue > 0.7-0.9m**

Norfolk > 2.8-3m

Papua New Guinea (Pt Mores) > 3.8m+

**Samoa (Apia) > 0.6-0.8m**

**(American) Samoa (Pago Pago) > 0.7-0.9m**

Solomon Islands > 1.6-1.8m

**Tonga (Nuku'alofa) > 0.6-0.8m**

**Tuvalu (Funafuti) > 0.6-0.9m**

**Vanuatu (Port Vila) > 1-1.2m**

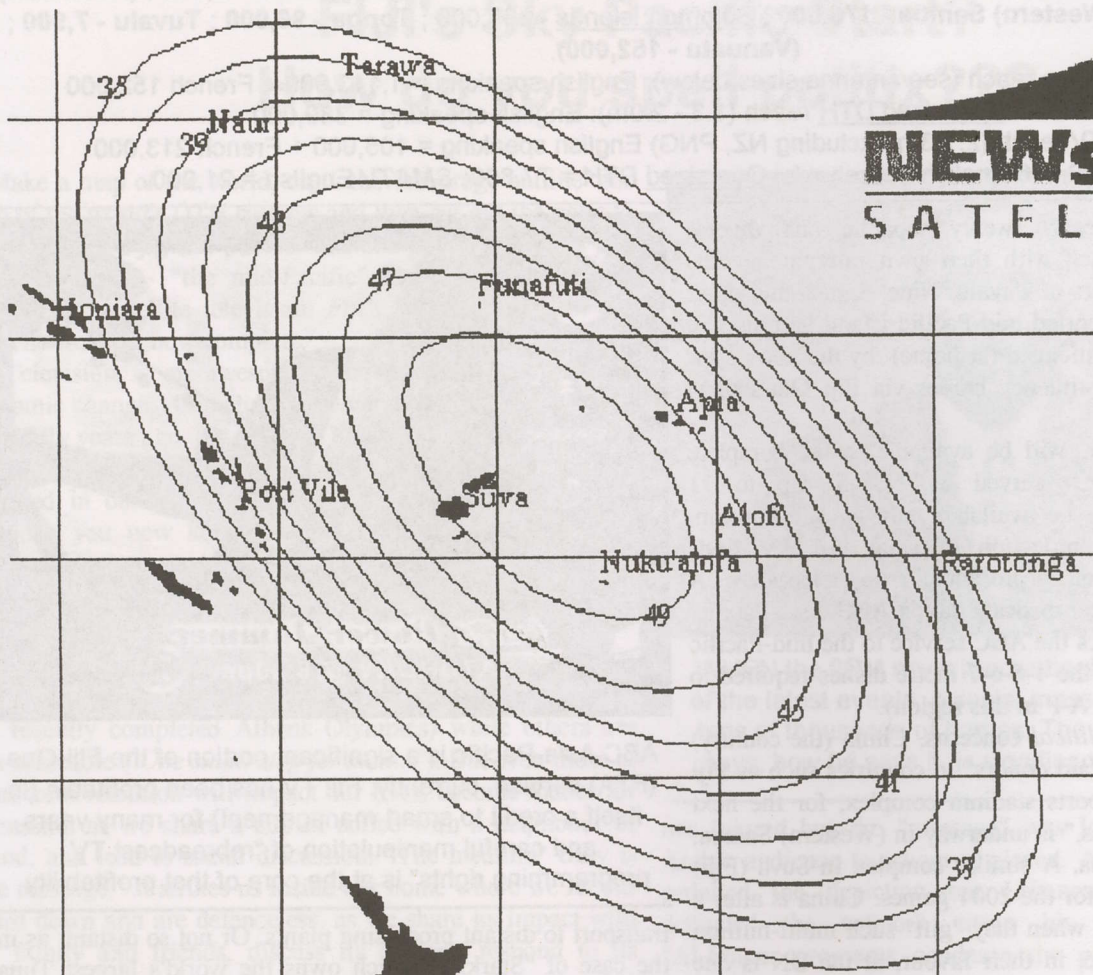
**bold face - DTH markets**







# NEWskies SATELLITES



ORIGINAL NSS-5 proposed footprint was the basis for all Fiji Sky Pacific planning. Dish sizes (box on bottom, p. 7) was primary criteria. "DTH" sizes (up to 1.2m size) represent primary market region; 38 dBw.



VertexRSI uplink dish positioned for I701 early in August. Ladder, ramp "suggests" true dish size!

The step from "fishing rights" to "TV rights" is a small one — once the politicians have shown their agreement to be bought. Even American Samoa, with 30 (largely US) cable TV channels, carries a number of satellite fed Chinese and Asian TV channels in a "market" so obviously "American" that every third car on the paved streets sports a McDonalds or Kentucky Fried Chicken bumper sticker. The world is all about money, even in the backwaters of the mid-Pacific.

Fiji TV's Ken Clark, CEO, is a mature, seasoned, veteran of "start-up" TV operations. A Canadian, Clark worked his way up from rural eastern Canada TV launches in the inaugural days of North American TV, through the all-powerful Canwest group and was assigned by his Canadian bosses to "turn around" recently acquired from bankruptcy New Zealand TV3. Which he did, establishing the network as a viable, money-earning entity squeezing viewers out from beneath the TVNZ umbrella one home at a time. Fiji TV was launched as a "temporary" service in 1994 by a team of technicians from TVNZ; Clark became the firm's first start-up seasoned headman and implemented Fiji TV's growth from a single free to air channel to a combination FTA (VHF) and pay-TV (UHF) firm. The UHF pay channel package is secured using NDS terrestrial technology in the exact same format as Sky NZ's UHF terrestrial services. In





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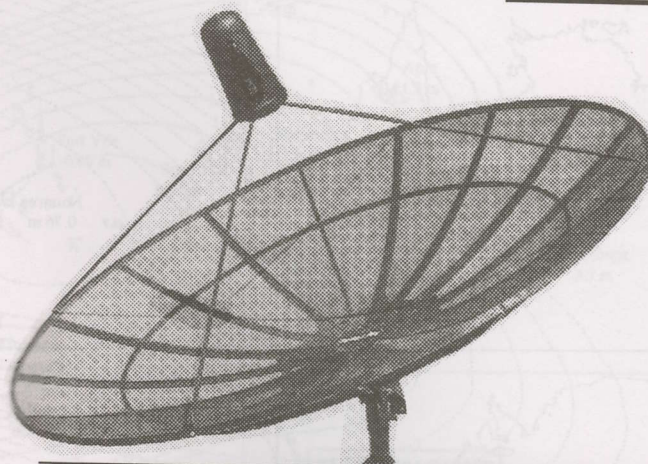
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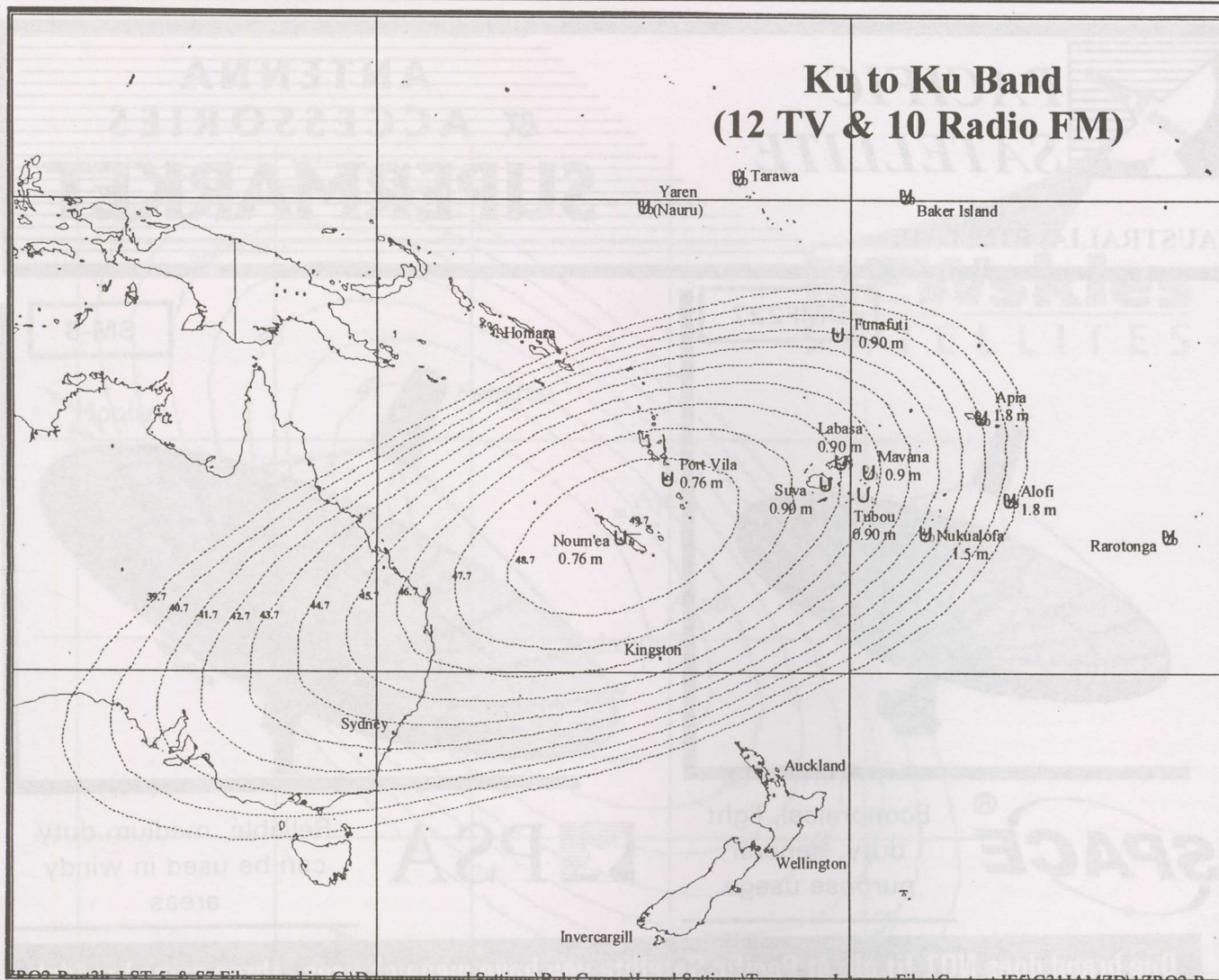
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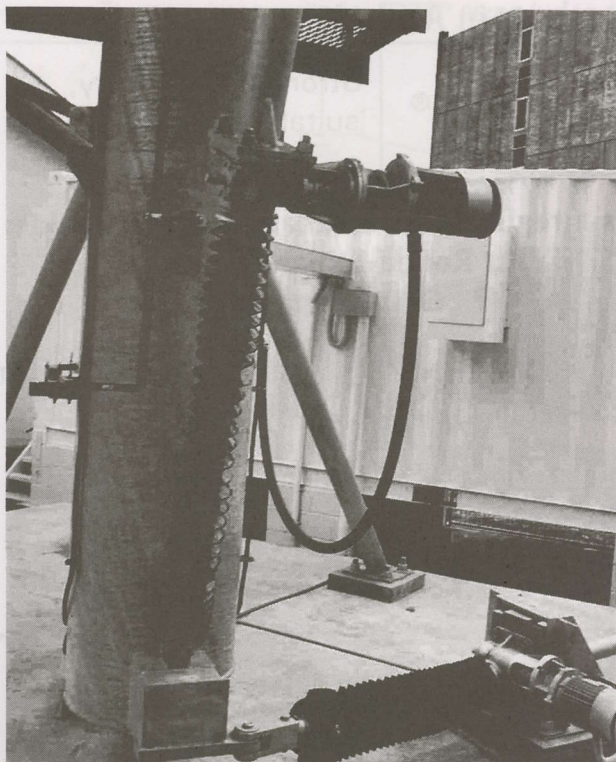
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## Ku to Ku Band (12 TV & 10 Radio FM)



1701 Ku spot beam showing coverage of Canal + and that achieved by Fiji TV during August-September testing (11.047 GHz).



Uplink dish is remotely controlled with motor driven actuators - elevation is at bottom.

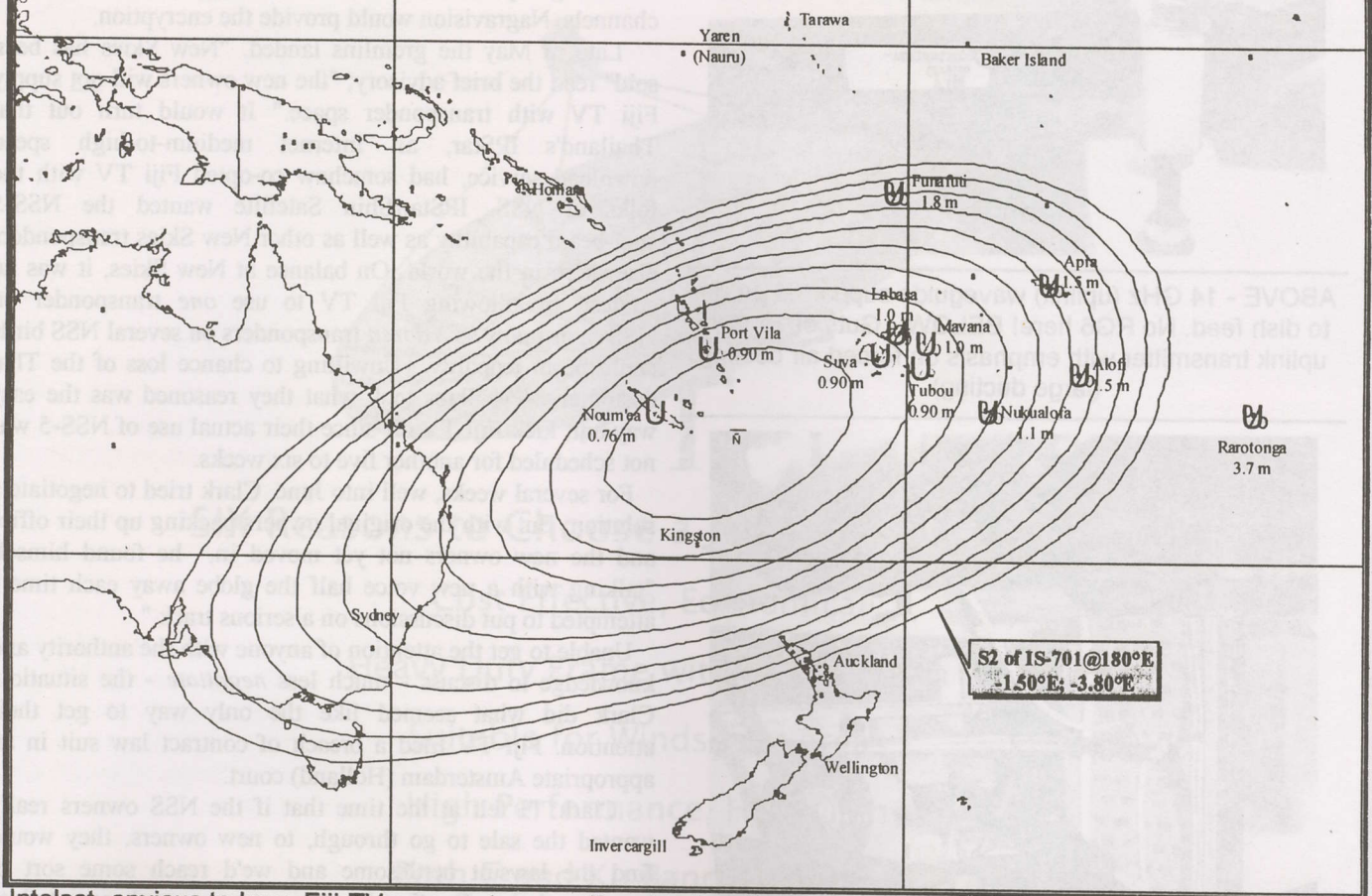
fact, virtually all of the pay-TV hardware including the in-home set top boxes are "second hand" from Sky NZ. It is a further feather to Clark's collection that pay-TV has been profitable for more than three years.

But Fiji - the country - is more than the primary island of Vita Levu (the capitol, Suva, is here) and the major northern island of Vanua Levu. It is hundreds of islands equal in land mass to New Caledonia, the (US) states of New Jersey and Massachusetts and larger than Hawaii (18,330 square km versus 16,640). And Fiji TV's government license included a requirement that the privately owned firm (a small percentage of the public traded stock is held by the Fiji Government) make at least FTA Fiji One available to as much of the widely dispersed country as practical, as quickly as possible. Satellite was of course the appropriate answer. Fiji's politicians were quick to grasp that communicating with the voters, through a national television service and the 6PM News, was an essential step in forward planning.

Clark began his firm's planning for satellite four years ago, mindful that while it might be possible to restrict the satellite footprint to just the country itself, there was a broader commercial and public service opportunity here. But costs versus profitable benefits were difficult equations. A single transponder rental would eat up millions of US dollars each year not inclusive of programming right costs and an enlarged staff to handle multiple channels of programming 24/7. And there was (and remains) the equally serious



## Ku to Ku Band (12 TV & 10 Radio FM)



Intelsat, anxious to keep Fiji-TV as a customer, offered to "readjust" the spot beam (above) which would have the affect of enlarging the coverage area. But still missing, - DTH "size" into over half of the NSS-5 footprint.

challenge of transporting complete satellite TV reception systems to isolated (by water and lack of on-ground conveyance) locations where as often as not electrical power is dependent upon somebody remembering to refuel the Chinese built diesel operated 2 kilowatt "village" generator.

### The satellite options

C-band was a non-starter - the antennas required defied logical shipping and assembly techniques by untrained personnel. And Ku was, back when planning began in 2000, pretty "iffy." The Ku options at that time were Intelsat - and - Intelsat. As CSAT (Canal +) would pioneer, I701 (at 180E) with spot beams that could be remotely adjusted to provide reasonable boresight (centre of coverage pattern) signal levels seemed like a "no brainer" decision. And in fact, transponder capacity on I701 was available. Unfortunately, the spot beam adjustment previously created for CSAT was favouring New Caledonia / Vanuatu and this meant that the "overspill" (on the same CSAT pattern) would be down several dB for Vita Levu and a couple of additional negative dBs for Vanua Levu. Fiji TV had to swallow hard and accept that dish sizes would commonly be 90+cm on Vita Levu, up to 1.5m in the more northern Vanua Levu. Moreover, there was the programming rights issues.

Clark's concept was to create Sky Pacific as an international service headquartered in Fiji, rather than as a Fiji service that

just happened to overspill to places like Tonga and Samoa. And he correctly deduced that if the CSAT coverage from I701 was going to be his coverage as well, that locations such as Nauru and Rarotonga would be disadvantaged by the dish size requirement.

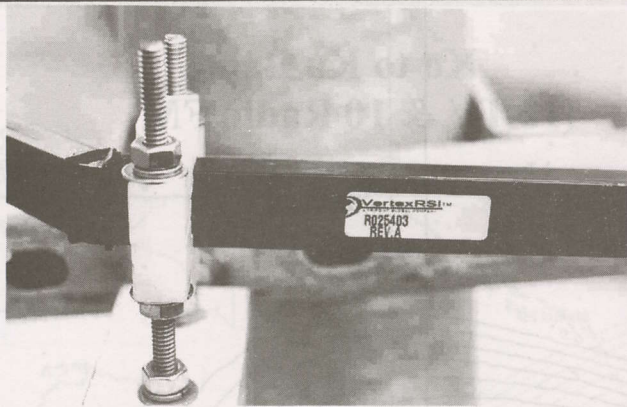
That was when New Skies (NSS) entered the frame. A new Ku-inclusive satellite, NSS-5, was to appear at 177W. Moreover, NSS-5 had been designed with a more versatile "spot beam" system, one that could be readjusted to create a pattern which would seem (on paper) to be precisely what Fiji TV was after.

CSAT's model includes viewers in Tuvalu, Tonga, Niue, Tokelau and Samoa - but requires Ku grade quality dishes from 2.4 to 3.6m in size. The NSS-5 footprint model delivers Tuvalu with 0.7m, Tonga with 0.7m, Niue with 0.8m, Tokelau with 1.1m and Samoa with 0.8m.

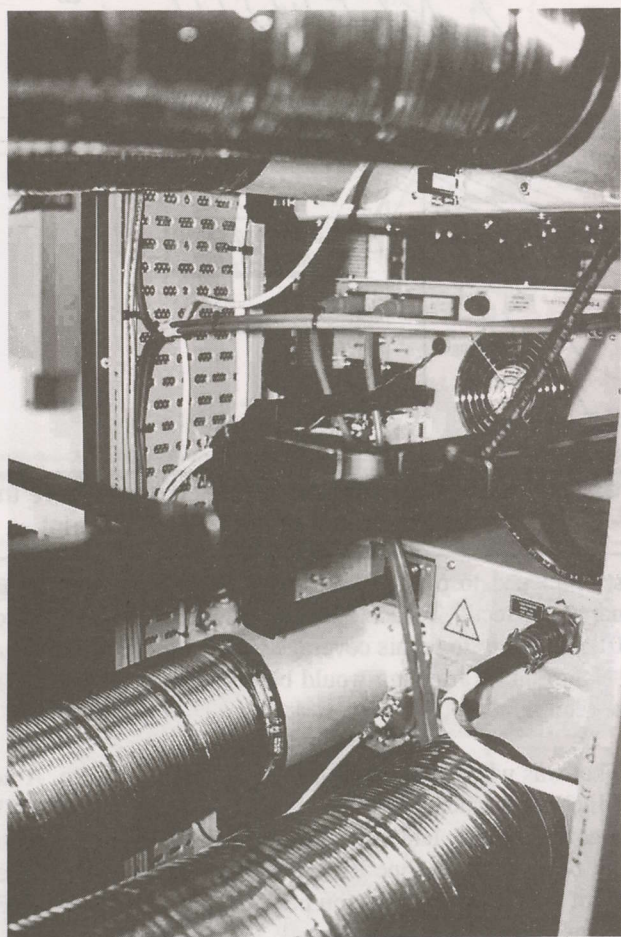
Clark wanted Sky Pacific to be "DTH" quality to as many presently unserved island (nations) as possible. "Once you go beyond a 1m dish the shipping and installation problems begin to multiply. In our view, anything larger than 1.5 - perhaps a properly designed 1.8m - is 'SMATV' region, no longer DTH."

When Sky Pacific was in the programme planning stage, Fiji TV went into the marketplace to locate syndicated material, news and sport services which would be appealing





ABOVE - 14 GHz (uplink) waveguide supported on run to dish feed. No RG6 here! BELOW - Guts of 14 GHz uplink transmitter with emphasis on forced air cooling (large ducting).



inside of the mid-Pacific region. Being on both sides of the international date line creates an interesting scenario - the Sunday-Saturday schedule created for Fiji and west of the line becomes a Saturday-Friday schedule on the eastern side. Clark: "We decided not to name any programs after days of the week - such as 'The Friday Night Feature Movie'."

#### The gremlins

While New Skies was negotiating through their Sydney office with Fiji TV, unbeknownst to either Sydney or Ken Clark, the Dutch based firm was quietly in negotiations of their own; to sell New Skies at their Netherlands office.

"After personal visits on both sides, numerous e-mails, Fiji TV and New Skies Sydney had total agreement - no loose ends," notes Clark. It was all go and at that point Fiji TV

released US\$2.25 million in purchase orders covering a Vertex (brand) 14 GHz uplink dish, the 600 watt (capable) uplink transmitter, and a container load of video-audio digital production equipment giving Sky Pacific the capability of delivering up to 12-each television and (stereo) radio channels. Nagravision would provide the encryption.

Late in May the gremlins landed. "New Skies has been sold" read the brief advisory; "the new owners will not supply Fiji TV with transponder space." It would turn out that Thailand's IPStar, an Internet medium-to-high speed download service, had somehow co-opted Fiji TV with the folks at NSS. IPStar/Shin Satellite wanted the NSS-5 spot-beam capability as well as other New Skies transponders elsewhere in the world. On balance at New Skies, it was no contest; by allowing Fiji TV to use *one* transponder on NSS-5, as many as a *dozen* transponders on several NSS birds could be in jeopardy. Unwilling to chance loss of the Thai customer, New Skies took what they reasoned was the easy way out; kick Fiji TV off since their actual use of NSS-5 was not scheduled for another five to six weeks.

For several weeks, well into June, Clark tried to negotiate a solution. But with the original owners packing up their office and the new owners not yet moved in, he found himself "talking with a new voice half the globe away each time I attempted to put discussions on a serious track."

Unable to get the attention of anyone with the authority and knowledge to discuss - much less *negotiate* - the situation, Clark did what seemed like the only way to get their attention. Fiji TV filed a breach of contract law suit in an appropriate Amsterdam (Holland) court.

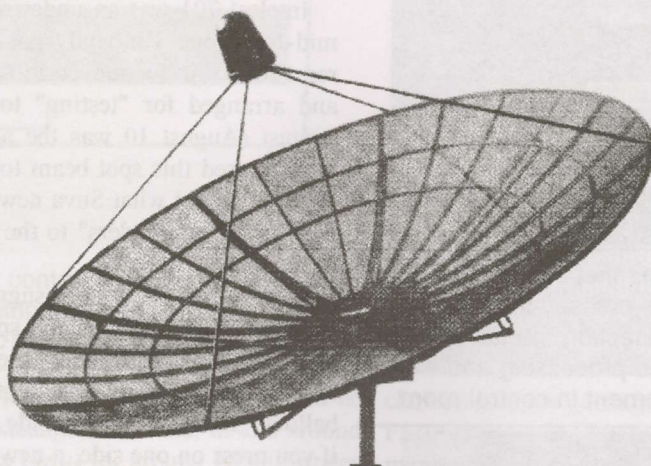
Clark: "I felt at the time that if the NSS owners really wanted the sale to go through, to new owners, they would find the lawsuit nettlesome and we'd reach some sort of accommodation. But first I had to get someone there to talk to me!"

As the lawsuit was being filed twenty foot containers loaded with a complete production centre and 14 GHz (Ku band) uplink station were appearing in Suva. And right behind the containers, skilled technicians and engineers from a number of supplier firms in North America and Europe. The construction of the facility would move ahead, on schedule, even if (at that point) there was no bird to receive the uplinked signal. Locally Fiji TV adopted a "Everything is on schedule" presence of mind and Suva newspapers reported on the station's progress unaware of the NSS gremlin.

There were other gremlins hiding in the ionosphere. TARBS, based in Sydney, was one of these. Shortly after the first of the current year, TARBS invited Clark and others from Fiji TV to Sydney where they were offered a business proposal. TARBS suggested they, from Sydney, could provide the uplink service (16 channels were described) as well as the subscriber management (CA) system. TARBS was proposing a package of channels that would include both English language programming (ESPN, TCM, CNN for example) and in recognition of the 40-45% Indian population base in Fiji, a selection taken from existing and proposed Zee TV and other Indian channels. But this would be through the footprint of Intelsat 701, the same footprint as Canal +, and by accepting this proposal Fiji TV would become not much more than a sales agent for an Australian uplinked service which would end up going to the wrong footprint anyhow. When Fiji TV said, "No thank you - we will pass," TARBS tried to exert



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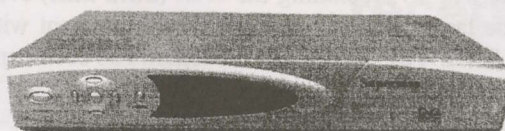
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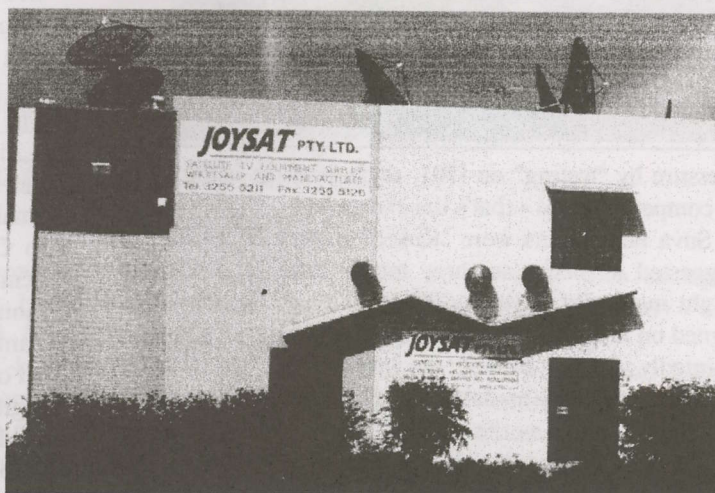
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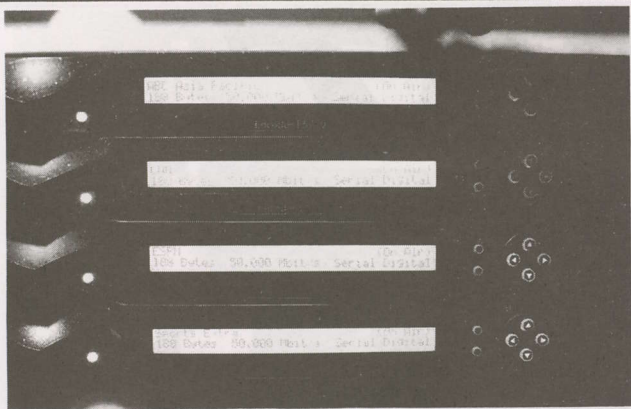


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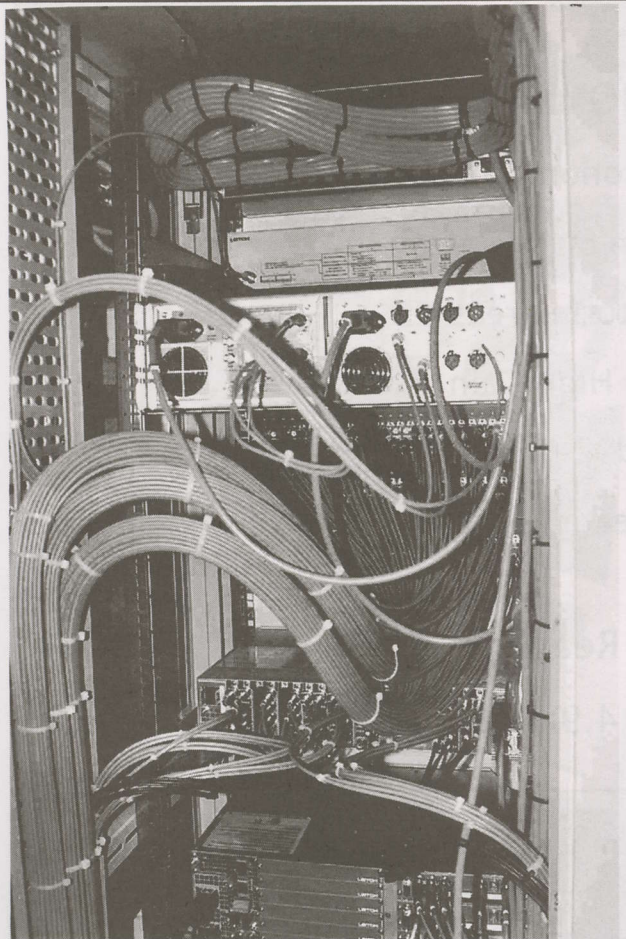
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ABOVE - Tanberg individual channel digital encoders - one per channel - ready to be pressed into service.

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pressure by "testing" on I701, their message being, "Join us or compete with us - that's the choice."

Suva newspapers were "leaked" a story by TARBS which suggested as many as three totally different DTH services might magically appear in the skies above Fiji while TARBS signed on board a prominent Fijian politician as a participant. Pointedly, Regina Boulos, the individual responsible for day to day operations at TARBS, was identified in Australian corporate records as the sole stockholder in the new firm, to be known as United Broadcast International (UBI).

The Dutch court ruled against Fiji TV late in June. Early in July, TARBS (as previously reported here) was forced into bankruptcy when creditors (primarily PanAmSat from whom

TARBS rented PAS-8 transponder space for service to Australia) cut off their credit line.

It was truly one very tangled mess. And it would become even more tangled.

#### The options

Intelsat 701 was an undesired fall-back position and as of mid-June, one Ku-band spot beam (identical to Canal +) remained. Fiji TV moved to secure an option on that space, and arranged for "testing" to be done on 701 from early August (August 10 was the actual first day). TARBS had already used this spot beam to show their muscle and if one believed any of what Suva newspapers were publishing, there were other "pretenders" to the "satellite throne" also waiting in the wings.

It was here that Intelsat suggested a new plan. They would "readjust" the CSAT-shared spot beam to give Fiji TV more of what they wanted, but (they claimed) not take anything away from Canal +. A spot beam is like a water filled balloon. The total water inside the balloon is finite, fixed. But if you press on one side, a new bulge appears on another side as the elastic membrane expands in response to the indentation. Intelsat was telling Clark, privately and off the record, "We can rotate the spot beam to improve your signal into areas such as Apia (1.5m versus 1.8m) and Nukualofa (1.1m rather than 1.5m)." Better? Yes. Suitable? Not unless NSS-5 was denied to Fiji TV. And - understand, that folks such as Canal + would have to give their approval for this readjustment of the spot beam before it could happen. Was that likely? Probably not - Port Vila (Vanuatu) would jump from a present day 76cm dish to a 90cm while Funafuti (Tuvalu) would climb from a 90cm to a 1.8m. And if Canal + could somehow be spot-beamed separate from Fiji TV, the antenna size for those fortunate folks who might like both services would be established by the weaker of the two spotbeams at their specific location.

#### Second court appearance

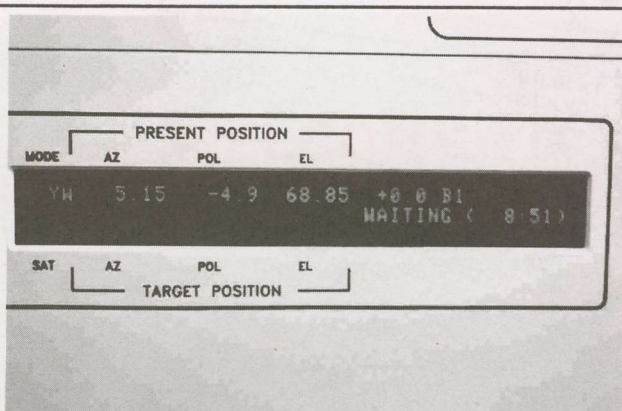
August 20th - Amsterdam Court of Appeals. Fiji TV Ltd versus New Skies. A three member panel of judges, including two women jurors, heard the evidence. Clark was on the stand for nearly an hour, explaining why NSS-5 was essential to not only Fiji TV's business plan but "first time live television" to the last remaining "jig saw patch" on the globe.

August 23rd - Amsterdam Court of Appeals. A ruling. Unanimous in favour of Fiji TV. NSS-5 would supply the required transponder, effective October 1. And for each day past October 1 where they did not comply, Euro\$50,000 per day penalty in favour of Fiji TV.

#### The future

First time live TV, including the 6PM (Suva time) evening news, to the last remaining unserved world segment without small dish DTH. Yes, "some" of this region has been exposed to Canal +'s French service, a few hardy souls have even ventured at least into the SMATV world with 5-7m C-band monster antennas (such as the Aggie Gray Hotel in Apia, Samoa). The mostly-English language channel list contains all of the basic elements - movies, sport, entertainment, news, regional service and local service. And with pricing in the region of F\$49 per month, the "sum" of subscribers spread across a region measuring (by footprint) 5,000km by 5,000km could approach 25,000 over 5 years. There are not insignificant business opportunities here. The knowledge base, to install Ku DTH systems, is totally missing in the





**POINTING** - Transmitter control room VertexRSI dish boresighting control waiting for NSS-5 instructions during SatFACTS visit in August.

countries identified in table form here (p. 7). Fiji TV will be supplying complete system packages, installed, in and around Suva (the capitol city on Vita Levu) for around F\$500. Prices logically will be greater where shipping of dish+LNB+mount+cable+STB enters the business plan. And remember - Fiji One, the national TV service, will be free to air (FTA) giving potential users an option between the usual pay packages and at least one English language channel.

There was a battle here. TARBS attempted to take over the Fiji TV national service by importing from Sydney programming channels it was itself importing from afar. But TARBS was teetering on the brink of insolvency (as it would turn out) and unlike Ken Clark, their "vision" of what Fiji TV should become was far more limited (by the Intelsat footprint they chose - too quickly as it turned out) to embrace. TARBS activity stirred other would-be players to action and for a short period of time during July, it appeared as many as three separate DTH services might be competing for the Fiji market. All were destined to fall apart in the final round save the original - Fiji TV

Fiji TV has invested F\$4,000,000 in its satellite groundwork; that includes the uplink system, the 12 channel video encoding system and control centre, and, modifications to their existing terrestrial control centre to allow its five channel package to be integrated into the more ambitious 12

(August 26, 2004) "Fiji TV has succeeded in its legal action for breach of contract against New Skies Satellites, NV of the Netherlands. In a



ruling handed down by the Amsterdam Court of Appeals 23 August, New Skies was ordered to deliver satellite transponder services to Fiji TV in terms of a 10-year contract between the parties in March of this year.

"Fiji TV Chief Executive Officer, Ken Clark, said the company was pleased with the decision and hoped that it would clear the air between Fiji TV and New Skies. He said he was looking forward to working with New Skies so that Fiji TV could deliver on the promise it had made to Government and the people of Fiji."

channel satellite package. If you like numbers, it works out to F\$10.28 per *potential* DTH home. Numbers of course can be manipulated to say almost anything you wish - it would be smart to remember here that of the 389,000 "English Speaking" homes that will now have multiple channel DTH service first-time available, only a tiny percentage (some estimates say 10%) can (1) afford the service, and, (2) arrange for it to be installed on their behalf. Still, that is nearly 39,000 homes and in some island nations (for example: Samoa - both US and Western) the Fiji TV DTH "take-up" will greatly exceed the 10% barrier (see Coop's Comment, p. 1 here).

The most pressing need is knowledge - what a satellite DTH system consists of, how it is properly installed, why it works or more importantly why it does not work (the long-distance authorisation routine could be a significant challenge!), what to do when it stops working. Clark and the team at Fiji TV have engaged in the "good battle" to bring Sky Pacific to fruition. Now - what remains is for the approximately 20 island nations of the mid-Pacific region to embrace it as their own. Soon - October first - the Suva originated "6PM News" will become their own and within months live feeds from throughout the region will enhance the daily report. The mid-Pacific region just took a "giant step for mankind."

## Death by small doses

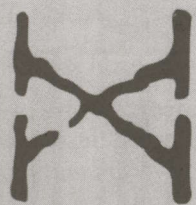
# "UNwired" is major threat to C-band reception in Australia

A brand new 3.4 GHz wireless service created to provide high speed (broadband") Internet to consumers has been introduced in Australia by a firm known as Unwired. It is death by small doses for existing and future C-band (3.5/3.7-4.2 GHz) reception. To date, it has rolled out in Sydney but there are plans to bring it into operation in other CBD (Central Business District) locations throughout the country as well. Basically, Unwired is terrestrial transmission sites, not unlike 900 and 1,800 MHz telephone "cell" sites, pumping out just enough power to make

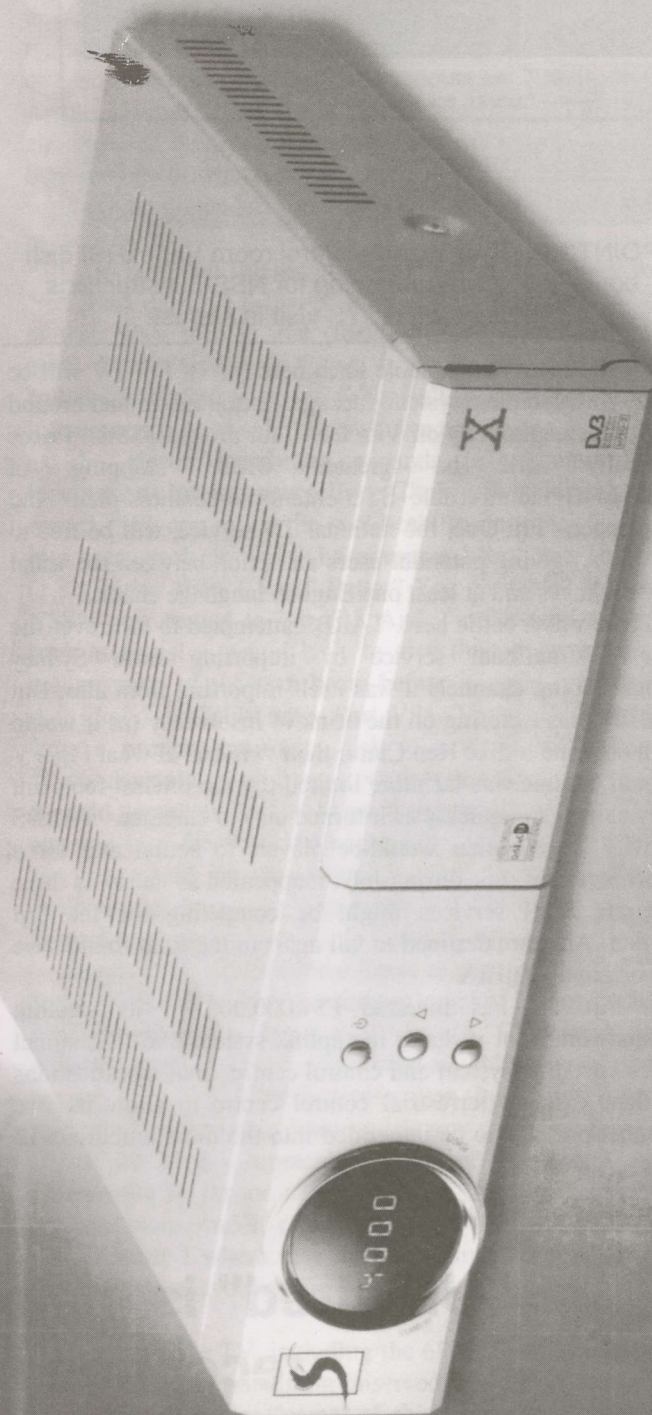
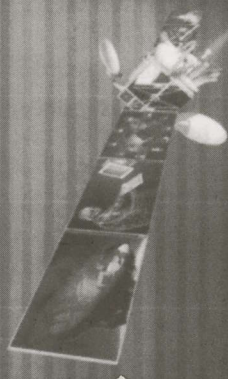
continued C-band reception in the same area someplace between impossible and very difficult. Garry Cratt (Av-Comm) calls it, "Death by overload."

The background. Australia's government, ever keen to raise more money for the federal treasury, and sensitive to industrial requests, elected approximately two-years ago to create a new "terrestrial" microwave band in the region of 3.4 GHz. This band was in response to the perception that broadband (384 kbps or greater) was not going to be available "wired" to a sizeable group of consumers, soon.





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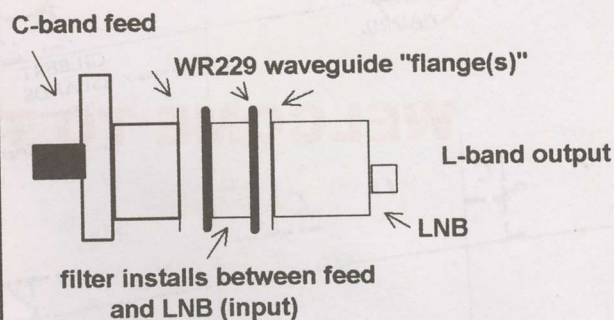
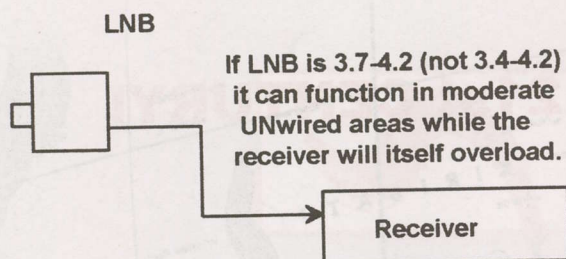
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Terrestrial signals are an order of many-magnitudes stronger than the relatively weak, distant satellite signals. The LNB is an "amplifier" that makes ALL signals stronger - by as much as 60 dB (100,000 times). When a strong signal enters the LNB, it "saturates" (overloads) the amplifier because the combination of a strong input "times" the gain of the amplifier adds to "too much signal" in the LNB "output" stages. LNB overload can ONLY be corrected with a filter (right hand diagram). Alternately, as Garry Cratt (Av-Comm) has discovered, many interference situations can be corrected AFTER the LNB at the receiver proper; see text.

The choice of the 3.4 GHz frequency band was unfortunate because of the possibility (which has now turned into a probability) that any home (or commercial) C-band dish located within a few kilometres of one of the 3.4 GHz "cell sites" would suffer grievous amounts of signal overload. The problem is the LNB(f) which is designed to process either 3-7 - 4.2 GHz or (even less wisely) 3.4 - 4.2 GHz. The UNwired band believed to presently be in use extends from 3.4 to 3.5 GHz. "Extended band" LNBs, designed to process signals in the 3.4-3.7 GHz region (such as from Thaicom 3) includes the 3.4 - 3.5 GHz region. And, this means that local (terrestrial) signals, "much stronger" than the distant satellite signals, picked up by the C-band dish feed ends up being pumped into the LNB.

**Step one:** Discard any "extended band" LNBs - the ones rated down to 3.4 GHz (you have a choice - switch out to a standard-band [3.7-4.2 GHz] LNB and *hope* it clears up your system and give up the 3.4-3.7 portion - or suffer the interference for the entire 3.4-4.2 spectrum). This will degrade (probably eliminate) any signals you presently receive from (much) below 3.7 GHz but it is a trade-off.

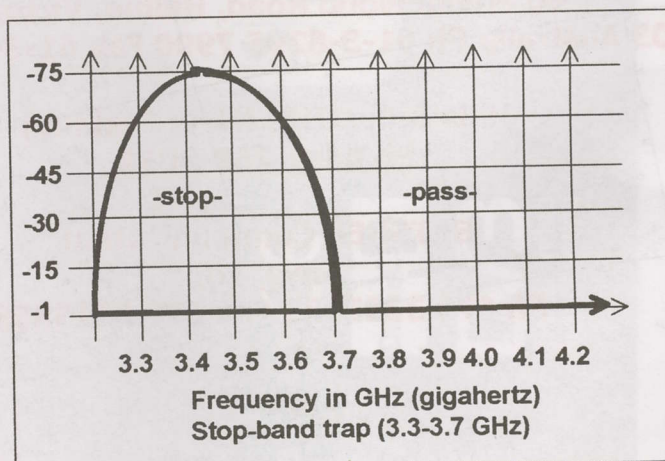
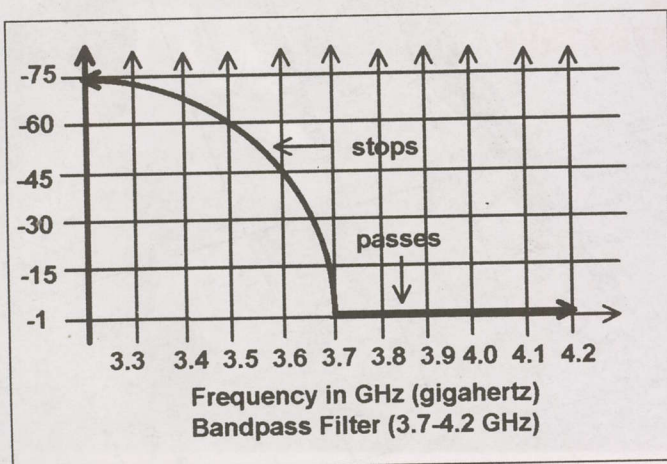
**Step two:** Garry Cratt (Av-Comm at Sydney 9939 4377) has determined that a high percentage of systems NOT using "extended band" LNBs (i.e. 3.4-4.2) are actually NOT suffering LNB overload - rather it is overload occurring at the satellite receiver rather than the LNB. Before you proceed any

further - to explore or invest in a C-band inline bandpass filter or stop band trap, check to see if the terminal is functional on ANY transponders. If it is, the problem can be addressed with L-band traps/filters and we assure you this is 1/10th the challenge (and approximately 1/4th the cost) of the C-band devices. SatFACTS will include details on how you do this, step by step, in an early issue.

**Step three:** If you really are experiencing LNB overload (and not receiver overload), AND replacing the LNB to eliminate any extended-band 3.4-4.2 versions, *then and only then* source and install a "microwave filter" between the C-band feed (WR229 flange) and the normal input flange on the LNB. But be warned - a properly designed filter (see sources, to follow) may not cure your particular problem. Here is why.

The UNwired service consists of dozens (soon, hundreds) of individual 3.4(-3.5) GHz terrestrial sites. Their concept, like 900 and 1,800 MHz telephone "cell sites," is to place one wherever potential customers may be located. They are typically atop buildings and hilltops, with maximum "line of sight" to as many potential customer locations as possible (3.4-3.5 GHz terrestrial is a LOS or line-of-sight proposition). And the UNwired terminals (already being sold at Harvey Norman!) use simplistic stubby or "patch" antennas customers place near to a convenient window facing towards their local "cell site" transmitter. A typical UNwired terminal

Bandpass filter (left, below) passes 3.7-4.2 GHz; Stop-band filter (right) passes 3.7-4.2, stops below 3.7.





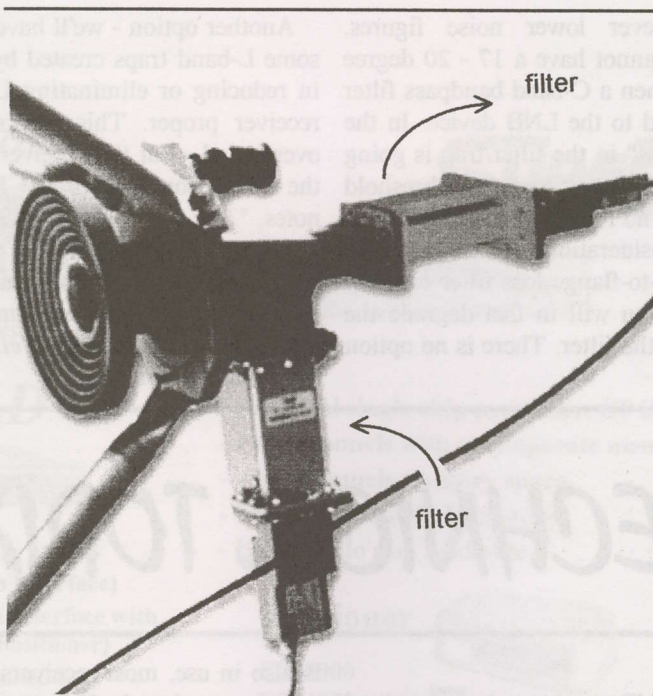
site exists on signals that are 60-70 dB stronger than the 3.7-4.2 GHz satellite signals you exist on. Their consumer terminal antennas are puny, mostly ineffective, and require the strong local presence of the nearest "cell site" transmitter to function. And that is why you are 60-70 dB *in the negative* with your LNB before you even begin to solve the problem.

#### The filter

What the filter does is to STOP signals in the frequency range below 3.7 GHz from reaching the LNB; or, if they do reach it (some will), they are significantly attenuated (reduced in level) before they enter the LNB through the small probe antenna built into the LNB. See diagram below.

If we consider the 3.4 GHz signals, 60-70 dB *stronger* at your location than the C-band satellite signals, to be "positive dBs" then by reference the filter creates "negative dBs." That is - it *takes away* 3.4 (-3.5+) GHz signals by some number of "negative dBs." Building a "bandpass filter" that allows ONLY 3.7 - 4.2 GHz signals through is one design approach. Another is to create a "stop-band" filter (trap is the correct term) which allows everything to pass through *except* the design spectrum for which it has been created; such as - 3.4 - 3.7 GHz.

Unfortunately, both bandpass filters and stop-band traps are subject to the laws of physics and they will never precisely separate 3.699 and 3.700 GHz so that everything below 3.700 is "stopped" and everything above is passed. Of the two approaches, a stop-band trap created to kill a region from 3.4 - 3.7 is more apt to do what you need done than a bandpass filter that works in reverse - passing only 3.7-4.2 GHz. In both cases the device must go between the feed and the LNB (which rules out LNBf packages). If you design either the filter or the trap to pass everything from 3.700 upwards to 4.2 GHz, in fact the "kill" (attenuator) function will not start precisely at 3.699 - it will gradually "roll down" so that by someplace around 3.55 or 3.6 GHz the kill function is fully



Microwave Filter Company solution for dual mode (separate horizontal and vertical) feeds; an inline filter (or trap) stuck between the feed flange and the LNB flange. Not a pretty (nor cheap) "fix."

functional. There is, therefore, a grey ("edge of skirt," as it is known in the trade) region either side of the bandpass filter region (3.7-4.2 GHz) or stop-trap region (3.4 - 3.7 GHz) where the attenuation (kill function) will be less - *far less* - than the amount of attenuation at the desired centre frequency. Again, see diagram page 18.

There is more. Even the best grade (USA\$500!) filters (or traps) that insert in the waveguide flange "sandwich" between the feed (WR229) and LNB (WR229) "flange" will have some loss *within* the desired band - such as 3.7-4.2 GHz. It is an immutable law of physics.

The very best stop-band (trap) and bandpass (filter) devices reduce the "in-band" (3.7 - 4.2 GHz) by (minus) 1 dB, +/- 0.5 dB. So in the worst case no

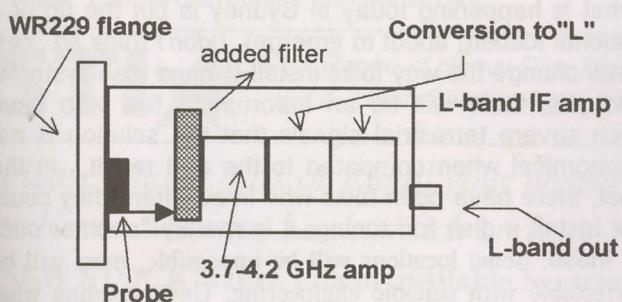
matter what else you do, the 2.4m antenna it is attached to will become a 2.1m (or 1.8) antenna and the best case is only slightly better. Moreover, there will be (although filter designers may argue this point) "bubbles" of additional attenuation *within* the 3.7-4.2 GHz region. Which means? If you are marginal now without a filter (and no UNwired interference) you will probably lose some of the desired 3.7-4.2 transponders anyhow. But the alternative is no reception on any transponder, at all.

#### Another approach

If Garry Cratt at Av-Comm is correct ("I estimate 5,000 C-band terminals in Sydney have already been degraded or shut down"), there is a "volume" solution to this possible. Currently C-band LNBs have bottomed out at pricing in the A\$25 region for what is claimed to be 55 - 60 dB of "conversion" gain and a noise figure of 15-20 degrees K. It is unlikely that LNBs will get any cheaper with this level of claimed specs (it is the 'made in China syndrome'). So how about designing an LNB for the Australian market which *includes*, built-in, a 3.3-3.7 GHz 'stop band trap'? A major part of the cost for those from MFC and others is the tooling for relatively small quantities, customised device by device "tuning" by a technician, and the need for dual flanges (one "in" and one "out"). A simplistic diagram for such a device appears lower left.

There is NO such device currently available. It is NOT beyond the technical capability of Asian designers, however. Spending US\$500 for an add-on bandpass or stop band (trap) is at best an interim solution to a problem which will now grow world-wide over the next few years. Yes - other "political" jurisdictions are following Australia's lead to create 3.4 GHz terrestrial microwave "links" for Internet (UNwired is but the first of many to follow). That says, correctly, that C-band LNBs of the future (even LNBf's) will be more concerned with interference rejection than the

#### Next generation LNB? Put the stop-band inside LNB!





hopelessly artificial race to ever lower noise figures. Understand, however, that you cannot have a 17 - 20 degree Kelvin noise figure at C-band when a C-band bandpass filter or stop-band trap has been added to the LNB device. In the real world, the 1.0 to 1.5 dB "loss" in the filter/trap is going to add 50-60-70 degrees to the system threshold "temperature." The alternative is no reception so in fact noise figure becomes a secondary consideration. And when you add a 1+ dB through-loss flange-to-flange loss filter *between* your LNB and the LNB input, you will in fact degrade the noise figure by the loss factor of the filter. There is no option here - *it is a law of physics.*

Another option - we'll have further reports in SF#122 - are some L-band traps created by Garry with significant success in reducing or eliminating UNwired service overload at the receiver proper. This works when the LNB itself is not overloaded - but the receiver is degraded by the presence of the extra-strong UNwired + LNB gain "numbers." As Garry notes, "*This is a correctable situation - the end of the C-band world is not near!*"

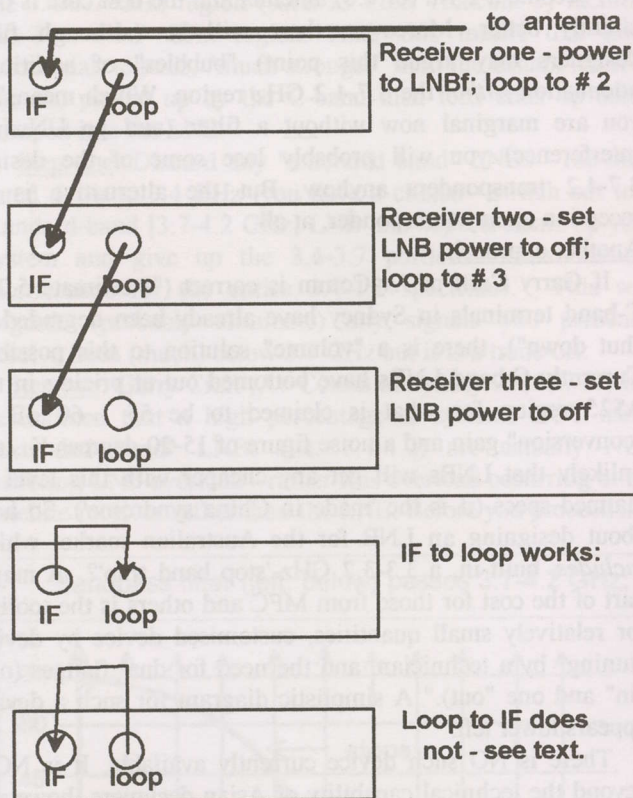
Sources for filters? Microwave Filter Company (Syracuse, New York) is <http://www.microwavefilter.com>; Dawnco is <http://www.dawnco.com>. *Neither* of these are recommended (price) at this time.

## TECHNICAL TOPIX

### L-band loop through?

"The rear of my MPEG-2 DVB receivers has a pair of chassis mounted F fittings on the rear deck. One is marked 'L-band/IF input' and the other is 'loop'. When connected to the antenna/LNB/coax input, the receiver seems to function on either of these fittings. Is there a difference?"

William T, NSW



Indeed there is. Power to the LNBf from the receiver is available only on the 'L-band/IF' F socket. The loop is *without power* and is intended for further connection to a second (third, etc.) receiver. If you are/were running only a single receiver, the system will not function without power to the LNBf so that line has to be connected to the appropriately marked fitting. If a second (third, etc.) receiver

is also in use, most receivers will in fact work whether you are connected to the IF/L input or the loop as the input. BUT - there will be a significant drop in receiver sensitivity (for the second / third etc.) receivers if you go from loop (out) on the first *out* to loop on the second (third) receivers. Typically, the loop *out* misused as an *input* will drop the signal by several dB reducing the "quality" reading (and signal level reading) display on your receiver accordingly.

Most "loop out" ("LNB Out") fittings are designed as "*directional couplers*" where the signal flows from IF/LNB "in" only towards Loop out/"LNB out." A directional coupler is a one-way device, intended to allow signal to flow in *only* one direction - "in" to "out." Setting aside that no LNB voltage appears on the "out" side (and thus the LNB cannot be fed from this fitting), a "quality 50 signal (for example) mis-fed on the "input" side will be reduced to a "quality 30" signal if mis-fed to the "(LNB) output" side.

Bottom line? If the signals are strong and register "Level 70+" and "Quality 60+" on the *first* receiver, you will get by even with the "Loop Out" on receiver #1 connected to "Loop Out" on receiver number two. But only because there is so much signal that you can afford to give away several dB of level by mis-using the Loop-out fitting. It may *work* but that does not make it right!

### More about UNwired interference

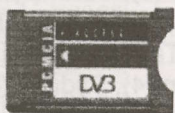
"My message is that while the sudden appearance of C-band blocking terrestrial signals in the Sydney area seems catastrophic, in fact our preliminary efforts at getting around this plague are producing results. I know commercial and consumer users are tearing their hair out wondering if this is the end of C-band in Australia (what is happening today in Sydney is but the tip of a national iceberg about to emerge). *I don't think so.* Yes, it will change the way folks install C-band dish systems, and yes, there will be an unfortunate few who have such severe terrestrial signals that the solution is not economical when compared to the end result. In the past, there have been folks who lived where they could not install a dish for zoning; it is merely "another one" of these. Some locations will be impossible, most will be correctable with suitable engineering. Understanding what this is all about is the first step to controlling it.



## CI Module



irdeto 2.09 cams



viaccess 2.5 cams

## TOPFIELD



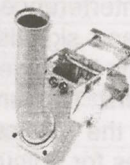
- TF3030F (FTA)
- TF3000CI pro (Common Interface)
- TF3000CIPro (Common Interface with Built-in Positioner)
- TF3200IR (Irdeto embedded)
- TF4000PVR (Personal Video Recorder 40GB)
- TF5000PVR (PVR 80G)

## SUPERJACK



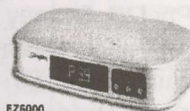
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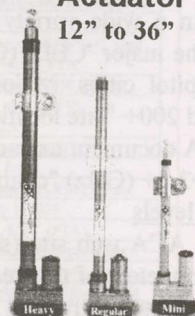
DG-120  
DiSEqC H-H Mount

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- EZ-4000
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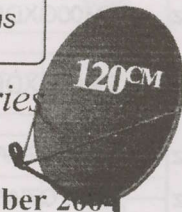
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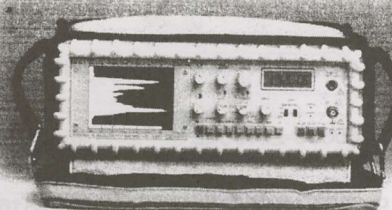
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"Some (potential) receive sites are more difficult than others and this adds a new layer of complexity; not impossibility. Frankly, while I wish it had not happened, I believe we will as an industry be better after we work this out because it is forcing us to take precautions that were common a decade ago but have been forgotten in the interim. The technology base that once had us doing site surveys *before* making installations, checking for local interference, and *fully* understanding the very weak C-band signals floating down from 40,000km or more away has been largely forgotten or ignored in recent years. This unwelcome intrusion will force us to return to the basics as 'wham-bam-thank-you-mam' installations for ridiculously low pricing will no longer be the rule of the day. If this results in some loss of under qualified, slow learning installers - so be it. If this also results in the average system costing more than it has recently, so be it."

Garry Cratt, Av-Comm Pty Ltd, Sydney

The UNwired plague potentially will affect C-band system users in a wide variety of communities quite far removed from the major 'CBD' (Central Business District) regions of the capitol cities. Major cities such as Sydney have been granted 200+ "site location licenses" (see very small segment in ACA document extract appearing below) covering a range of 3.4-3.5+ (GHz) "channels."

#### Power levels

The ACA web site (see below) spends 31 pages defining the parameters of this terrestrial radio service. Basically, on each of the individual frequencies (see above table) the transmitted signal (being a square-wave type of digital display) will be 30 kHz (kilohertz) wide at full power. The maximum power allowed is someplace between deadly and hair raising (+52 dBm eirp within the 30 kHz bandwidth) - an individual would be ill-advised to wrap their arms and legs around a 3.4 GHz UNwired transmitting antenna for more than a few seconds (the microwave oven effect!). However, chances are the actual power will be something less than the maximum allowed, for, as ACA writes:

"However, total radiated power is limited indirectly by: (a) the cost of the high power amplifiers, (b) the general requirement to use low power in cellular systems; and, (c) the emission limits outside the band become increasingly difficult to satisfy as the total transmitter power increases.

#### Towns/cities with licences granted (\*)

Adelaide (8), Albury (9), Bendigo (9), Brisbane (3), Cairns (9), Canberra (9), Hobart (7), Launceston (7), Melbourne (9), Perth (9), [Regional] NSW (3), ([Regional] Queensland (3), [Regional] SA and WA (3) [Regional] Tasmania (3), [Regional] Victoria (3), Rockhampton (4), Sydney (8), Toowoomba (7) and Townsville (9).

\* - A licence is granted on a region/city basis; there may be 200+ individual transmitter sites (locations) for just one licence so in theory Sydney with 8 licences could ultimately have 1,600+ transmit/receive sites.

#### The actual frequencies involved (\*)

3.4LOW: 3.425, 3.439, 3.442, 3.475 GHz  
3.4 UPPER: 3.475, 3.482, 3.485(.5), 3.489, 3.492(.5) GHz  
3.4UPPER "Band B": 3.542(.5), 3.546, 3.575 GHz

#### Emissions outside of band

With a 30 kilohertz bandwidth (for example: 3.546 GHz must confine the maximum power to 3.545.985 through 3.546.015), emission (transmitted power) levels outside of the assigned bandwidth are severely restricted by the technical parameters (example: -11 dBm eirp from 500 kHz to 530 kHz). *Only* base station (cell site) locations require a licence - individual customer sites (remember - they receive AND transmit), much lower in transmit power, are apparently "group" licensed - *no individual licences*. However, if the guy next door to you has a "transceiver" (transmitter + receiver operating into the UNwired network), his proximity to your dish even at low power could be a headache. Which means? The more popular the service becomes, the more likely someone next door to you will fire up with a "Harvey Normal Special."

#### Interference

Licence Schedule 4 includes rules for "Interference Management." No, as a C-band dish owner, you do *not* have rights. Only other "licensed" users have rights to complain about and expect remedy of interference. A C-band reception terminal is *not* entitled to protection from UNwired "ops."

From ACA web site ([http://www.aca.gov.au/pls/radcom/licence\\_search.licence\\_loopup?](http://www.aca.gov.au/pls/radcom/licence_search.licence_loopup?)) this tiny segment of the licenses issued to frequency holder AKL Pty Ltd in 3.4UPPER Band A. All locations can be researched from this ACA web site although many of the locations have yet to be built and turned on.

Registration Identifier	Frequency	Emission Designator	Site
1145627-2219039	3.4810000 GHz	7M00GXDEX	77 Parramatta Road (Cnr Silverwater & P LIDCOMBE (51040)
1145636-2219048	3.4810000 GHz	7M00GXDEX	MWS & Db Reservoir Wilson Road QUAK (130102)
1145637-2219049	3.4810000 GHz	7M00GXDEX	Wentworth Gardens 15 Campbell St PAR (4728)
1145638-2219050	3.4810000 GHz	7M00GXDEX	Bush Fire Brigade Tower Emergency Sen Kamber Road TERREY HILLS (4245)
9302767-3006259	3.4799616 GHz	8M47Q7WWW	Telecom Tower 2 Adamstown (5861)
9302768-3006260	3.4799616 GHz	8M47Q7WWW	Telstra Site Brokenback Near CESSNOC
9302769-3006261	3.4799616 GHz	8M47Q7WWW	Telstra Tower Jarvie Road Berkeley Tops WOLLONGONG (200355)



# SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 Sept, 2004

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym
Thom3/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(,000)
	ANT Greece	3672/1478H	1 TV	3/4	13(.333)
	Korean Central	3665/1485H	1	2/3	3(.367)
	TARBS ME mux	3640/1510H	12TV, 12 radio	2/3	28(.066)
	Ch Nepal	3626/1524V	1	3/4	15(.556)
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(.667)
	SE asia Mux	3569/1581H	2+ TV	3/4	12(.500)
	RR Sat mux	3551/1600H	8TV, 10 radio	3/4	13(.333)
	JAIN TV	3538/1612V	1TV	3/4	3(.300)
	PTV1 +	3521/1629V	1TV, 1 radio	3/4	3(.333)
InSat 2E/83	FTA Mux	3520/1630H	12TV, 12 radio	3/4	29(.800)
	KTN plus	3500/1650H	2+ TV	3/4	26(.667)
	TVK Cambodia	3448/1702H	1TV	1/2	6(.312)
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(.667)
	KCTV/Korea	3424/1726H	1TV	3/4	3(.366)
	Thai Global	3425/1725V	up to 7?	2/3	27(.500)
	ETV mux	4005/1145V	6+ TV	3/4	27(.000)
	Hyd Dig 2E	3910/1240V	1	3/4	5(.000)
	Kairali TV	3699/1451V	1	3/4	3(.184)
	Indian mux	3643/1507V	3	3/4	19(.531)
NSS6/95E	ETV Mux#2	3485/1665V	4+TV	3/4	27(.000)
	Sky Bangla	3430/1720V	1TV	3/4	6(.000)
	Ant Pac (Greek)	11.083H-Australia	1 TV	3/4	2(.171)
	TVR Int	11.106H-Australia	1TV	3/4	3(.255)
	Free-X TV, plus	12.729V-Australia	5+TV	7/8	27(.500)
	Guangdong TV	4075/1075H	1TV + radio	3/4	6(.000)
	Euro Bouq	4000/1150H	6TV, 21r	3/4	28(.125)
	Reuters News	3905/1245H	1TV	3/4	4(.000)
	WorldNet	3880/1270H	4+/28radio	1/2	20(.400)
	APTN Asia	3799/1351H	1	3/4	5(.632)
As2/100.5E	Reuters/Sing.	3775/1375H	1	3/4	5(.631)
	Macau MUX	4148/1002V	5TV	3/4	11(.850)
	Feeds	4086/1064V	1	3/4	5(.632)
	Dubai MUX	4020/11430V	4+, radio	3/4	27(.500)
	Fashion TV	3795/1355V	1	3/4	2(.626)
	3-ch miniMUX	3752/1398V	up to 3	3/4	5(.640)
	Saudi TV1	3660/1490V	7+/tests	3/4	27(.500)
	Telstra 1-Net	12.596V	no TV	5/6	30(.000)
	RR Mux	3669/1481V	up to 5 TV	3/4	13(.333)
	Zee bouquet	3700/1450V	10TV	3/4	27(.500)
As3S/105.5E	Ch News Asia	3706/1444H	1TV (+)	3/4	6(.000)
	BTV World	3725/1425V	1TV	3/4	4(.450)
	SAB TV	3743/2407V	1TV	3/4	3(.300)
	Ariang TV	3755/1395V	1	7/8	4(.418)
	Now TV +	3760/1390H	up to 8TV	7/8	26(.000)
	Star TV	3780/1370V	7(+TV)	3/4	28(.100)
	GXTV	3806/1344V	1TV + 3 radio	3/4	4(.420)
	Shaanxi TV	3813/1337V	1TV + 2 radio	3/4	4(.420)
	Anhui TV	3820/1330V	1TV + 2 radio	3/4	4(.420)
	Jiangsu TV	3827/1330V	1TV + 2 radio	3/4	4(.420)
Cak1/107.5	HLITV	3834/1316V	1TV	3/4	4(.420)
	Star TV	3840/1310H	7(+TV)	7/8	26(.850)
	Star TV	3860/1290V	5(+TV)	3/4	27(.500)
	Abu Dhabi MUX	3880/1270H	8+TV, 10Radio	3/4	27(.500)
	Dragon TV	3886/1264V	1 TV	3/4	4(.800)
	Shaanxi TV	3895/1255V	1TV + 6 radio	3/4	6(.813)
	Jilin TV	3914/1236V	1TV + 1 radio	3/4	4(.420)
	Star TV	3920/1230H	4+ TV	7/8	26(.850)
	Star TV	3940/1210V	6(+TV)	7/8	26(.850)
	CNNI	3960/1190H	8(+TV)	3/4	27(.500)
T'Kom/108E	Star TV	3980/1170V	6+TV	3/4	28(.100)
	Star TV	4000/1150H	8(+TV)	7/8	26(.850)
	Sahara digital	4020/1130V	8TV	3/4	27(.250)
	Hubel TV	4035/1115H	1TV + 2 radio	3/4	4(.420)
	Sichuan TV	4051/1099H	1TV + 1 radio	3/4	4(.420)
	Qinghai TV	4067/1083H	1TV + 2 radio	3/4	4(.420)
	Hunan TV	4082/1068H	1TV + 1 radio	3/4	4(.420)
	Pakistani TV	4091/1059V	5TV, 1 radio	3/4	13(.333)
	Sun TV	4095/1055H	1	3/4	5(.554)
	TVB8 Mux	4110/1040H	3	3/4	13(.650)
C2M/113E	Indus News	4115/1035V	1	3/4	3(.222)
	CCTV bqt	4129/1021H	4(+TV)	3/4	13(.240)
	Zee Bqt #2	4140/1010V	8(+TV)	3/4	27(.500)
	Henan TV	4166/984V	1TV + 4 radio	3/4	4(.420)
	Fujian TV	4180/970V	1TV + 2 radio	3/4	4(.420)
	Jiangxi TV	4187/963V	1TV + 2 radio	3/4	4(.420)
	Liaoning TV	4194/956V	1TV + 2 radio	3/4	4(.420)
	Indovision (S-band)	2.535, 2.565, 2.595, 2.625, 2.655	33(+TV)	7/8	20(.000)
	IndoBqt	3460/1690H	up to 6	3/4	28(.000)
	TPI	4185/965V	1	3/4	6(.700)
T'Kom/108E	TVE Asia-Africa	4160/990H	1	3/4	5(.632)
	Anteve	4144/1006V	1	3/4	6(.510)
	Kabelvision Mux	4080/1070H	7+ TV	7/8	28(.125)
	Indostar	4074/1076V	1	3/4	6(.500)
	SCTV	4048/1102V	1	3/4	6(.618)
	Indonesian Mux	4000/1250H	6+ TV	3/4	26(.085)
	Satelindo	3935/1215H	1	3/4	6(.700)

## Receivers and Errata

CA (#1, 3), FTA audio #2 (dm)  
Late July 04: room for more (FTA)  
Global footprint; changes 02/03  
CA + 2 FTA(AITV, IRB3)  
New 03/03; FTA  
Thai + Indian services; FTA  
MRTV3, MRTV (DM)  
3TV, 5radio inc. Hellas TV Greece FTA  
PIDs 4132/4133  
frequency change  
Aug 04: 5TV, 1ra FTA (India)  
Irdeto 2, apparently SE Asia based (08-04)  
FTA  
3FTA: TV5, VTV4, ATN Bangla  
Not 24 hour; FTA?  
FTA (reaches SE Australia)  
Several ETV now here; wide beam  
SCPC, OK E. Aust. wide beam  
SCPC, OK E. Aust wide beam  
corrections 12/02  
Several new ETV here; Asia beam  
New - November 2002  
(still) FTA 09-04  
(still) FTA 09-04  
Require authorisation: sales@bluekiss.biz; some fta  
July 04: FTA  
FTA TV + radio; TV5 Asia moved "down" April  
Was 3923H; sometimes FTA  
FTA; multiple audio services V2360, A2320  
Sometimes FTA; also 3895Vt  
FTA & CA  
5 chs TV, FTA, some tests  
FTA SCPC feeds  
FTA, EuroSport PID change (1213/1313) June  
FTA as of May 1, 2003  
Sun-TV, Surya TV, KTV (FTA)  
FTA MCPC; Yemen, MBC EUROsport tests  
Signal useful for dish testing - no TV  
Bluekiss adult here; CA cards sales@bluekiss.biz  
Mediaguard + Conax CA; 2 occ FTA  
New September 2003; English + V1160, A1120  
Bangladesh TV FTA started early March 2004  
FTA SCPC; New PIDs V3601, A3606 June 2003  
CA + NOW, B'berg, Indus Music, MTA FTA  
NDS CA (Pace DVS211, Zenith)  
Guangxi TV; was As2  
Was As2  
Was As2  
Was As2  
Was As2; HeiLong  
NDS CA (Pace DVS211, Zenith)  
NDS CA (Pace DVS211, Zenith)  
New April 2004: link to Optus B3 Globecast  
Shanghai  
Apparently Mongolia; was As2  
Was As2  
Star Sports Asia (+), FTA NTSC; V512, A640 English  
NDS CA as above; may NOT be operational  
PowVu CA; new SR Apr 29; CNN radio FTA  
NDS CA; Star News India FTA VPID 514, APID 648  
NDS CA w/ 4(Chinese) FTA  
New Sr September  
Was As2  
Was As2  
Was As2  
Was As2  
new Sr, channels, Nov 2003  
"History Channel" - SCPC  
MATV Chinese movies FTA + CA; new Sr 05-04  
Hindi (+ "Plus")  
moved from 4115  
Mediaguard (SECA) CA  
Was As2  
Was As2  
Was As2  
Was As2  
NDS CA using RCA/Thomson,  
Pace IRDs; 2.535 has 2 FTA  
also 3586H/17.500, 3496H/19.615  
FTA SCPC; NT/NC only  
New August 2003  
change from 4055V; FTA SCPC  
also try 3500H, 27.000, 3/4; strong NZ  
FTA (new 06-03); V2201, A2202  
FTA SCPC; NT, New Caledonia only  
unstable platform - not always there  
test card - only - reported



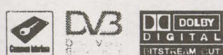
Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
	<b>Brunet/Sing</b>	3733/1417H	1TV	3/4	6(.000)
	<b>RCTI</b>	3473/1677H	2	3/4	8(.000)
As4/122E	Aust DTH test?	12.333H	1	3/4	5(.878)
	CCTV internal	4020/1130V	6	3/4	27(.500)
	CCTV internal	4100/1050V	6	3/4	27(.500)
	<b>Tests</b>	3733/1417H	2 TV	3/4	5(.789)
Jc3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)
	Asian bgt	3960/1190V	up to 8	7/8	30(.000)
Jc2A 154	<b>BYU-TV</b>	3915/1245V	1+languages	3/4	4(.166)
MeasSs2	<b>Astro Mux</b>	11.602H	up to 17TV	3/4	41(.500)
	<b>VTV MUX</b>	11.522V	3 TV	3/4	9(.766)
B3/152	Optus tests	12.407V	4 TV, 10 radio	2/3	30(.000)
	Occ feeds	12.440H	1TV	3/4	6(.666)
	Occ feeds	12.450H	1TV	3/4	6(.666)
	unknown	12.501H	no svcs	7/8	30(.000)
	<b>GloboCast 2</b>	12.525V	10 TV, 7 radio	2/3	30(.000)
	<b>GloboCast (feeds)</b>	12.550-.555V	1TV	3/4	6(.110/.670)
	<b>Sydney Racing</b>	12.563H	1TV	2/3	30(.000)
	<b>GloboCast 1</b>	12.657V	14TV, 15 radio	2/3	30(.000)
	<b>UBI</b>	12.674H	+/- 10TV	3/4	27(.500)
	<b>UBI</b>	12.704H	+/- 10TV	3/4	27(.500)
	<b>WA ABC</b>	12.702V	1 TV, 1 radio	7/8	14(.288)
	<b>WA SBS</b>	12.720V	4TV, 2 radio	5/6	12(.600)
	<b>WA GWN/WIN</b>	12.738V	2TV	7/8	14(.295)
C1/156E	Optus test bed	12.290V/T1L	(empty)	1/2 (*)	28(.642*)
	Optus test bed	12.325V/U	(empty)	1/2 (*)	24(.444*)
	Pay TV	12.367V/T2	11TV, 2 radio	3/4	27(.800*)
	Aurora Home	12.407V/T3	5 TV, 13 radio	2/3	30(.000)
	Pay-TV	12.447V/T4	5TV, 4 data	3/4	27(.800)
	Pay TV (test)	12.487V/T5	3 TV	3/4	27(.800)
	Aurora 2	12.527V/T6	7TV, 20 radio	3/4	30(.000)
	Pay-TV	12.567V/T7	10 TV	3/4	27(.800)
	Pay-TV	12.607V/T8	10 TV	3/4	27(.800)
	Pay-TV	12.647V/T9	10 TV	3/4	27(.800)
	Austar	12.305H/T11	6TV, 24 data	3/4	30(.000)
	Pay-TV	12.358H/T12	10 TV	3/4	27(.800)
	Pay-TV	12.398H/T13	10 TV	3/4	27(.800)
	Pay-TV	12.438H/T14	6TV, 3 data	3/4	27(.800)
	Pay-TV	12.478H/T15	10 TV	3/4	27(.800)
	Pay-TV	12.518H/T16	10 TV	3/4	27(.800)
	Pay-TV	12.558H/T17	10 TV	3/4	27(.800)
	Pay-TV	12.638H/T19	9TV, 30 radio	3/4	27(.800)
	Pay TV	12.688H/T20	11TV	3/4	27(.800)
B1/160	Occ. feeds	12.380H	1 TV - *	3/4	6(.111)
	Occ. feeds	12.384V	1 TV - *	3/4	6(.111)
	<b>Net 7 service</b>	12.397H	1	3/4	7(.200)
	<b>Net Ten</b>	12.353H	1TV + 1 radio	3/4	5(.100)
	<b>Imparja mx</b>	12.379H	2TV + 8 radio	3/4	5(.424)
	<b>7 digital feeds</b>	12.397H	1TV	3/4	7(.200)
	<b>Feeds to NZ</b>	12.411V	1 TV	3/4	6(.111)
	<b>SBS Mux</b>	12.420H	3+ TV, 2+ radio	5/6	12(.600)
	<b>TVNZ DTH</b>	12.456V	5+TV	3/4	22(.500)
	<b>Nine Net</b>	12.512H	1 TV typ.	3/4	5(.632)
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(.500)
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(.500)
	Sky NZ	12.644/671V	9TV	3/4	22(.500)
	<b>ABC HDTV</b>	12.603H	5TV	7/8	14(.300)
	Sky NZ	12.707/733V	8+TV	3/4	22(.500)
	<b>Mix 106.3</b>	12.574H	1 radio + data	3/4	1(.851)
P8/169	<b>ABS-CBN</b>	12.575H	4+TV, 4+ radio	2/3	13(.845)
	<b>JEDI/TVB</b>	12.686H	11+ TV	3/4	28(.126)
	<b>ABC A-P</b>	4180/970H	2TV, 2 radio	3/4	27(.500)
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)
	Taiwanese MUX	4080/1070H	12+ TV	5/6	30(.000)
	NHK Joho	4060/1090H	7TV, 1 radio	3/4	26(.470)
	FOX Mux	4040/1110V	up to 5TV	7/8	26(.470)
	<b>NET +</b>	4121/1029V	1 TV	3/4	4(.774)
	ESPN USA	4020/1130H	8+TV, data	3/4	26(.470)
	Discovery	3980/1170H	8 typ.	3/4	27(.690)
	CalBqt/Pas8	3940/1210H	up to 3+ FTA	7/8	27(.690)
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)
	FilipinoMUX	3880/1270V	up to 8TV+radio	5/6	28(.694)
	<b>TaiwanBqt</b>	3860/1290H	12TV + 30 r	5/6	28(.000)
	<b>CCTV Mux</b>	3829/1321H	up to 4 + 1 radio	3/4	13(.240)
	TVBS-N	3836/1314V	1FTA, 4+ CA	3/4	22(.000)
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
	Discovery Asia	3764/1386V	Up to 6 TV	3/4	19(.850)
	MTV	3740/1410H	8	2/3	27(.500)
P2/169E	<b>WA Mux Pv</b>	12.281V	3+ TV, radio	2/3	27(.500)
	<b>Ariang TV</b>	12.401V	1TV	3/4	4(.400)
	<b>ABS-CBN</b>	12.575H	4TV, 2 radio	3/4	13(.845)
	<b>NBN</b>	4126/1024V	1TV	3/4	3(.075)
	<b>TARBS feeds</b>	4090V/1060V	9TV + radio	3/4	21(.000)
	<b>Feeds</b>	4027/1123H	1+TV	2/3	6(.620)
	Middle East	3836/1314V	4 typ	3/4	13(.331)
	<b>Feeds</b>	3803/1347V	1	3/4	6(.000)
	<b>PAS/BBC mux</b>	3744/1406V	3	3/4	21(.500)

### Receivers and Errata

FTA ; Singapore 23hrs, Brunei 1 hr, Brunei V1200  
 FTA SCPC; Australia, New Caledonia, some English  
 Unknown source, believed to be Sydney (08-04)  
 New Aug '04; Irdeto 2  
 New Aug '04; Irdeto 2 + TVSN occ. FTA  
 Tests: erratic service  
 PowerVu; some FTA (Ch. 1 & 3)  
 CA & FTA NTSC: Japan, Taiwan  
 Erratic service; strong NZ & Australia  
 Aust East beam - 3 FTA + 14 CA  
 WA only? Skew path, intended Asia  
 differs from 12.407 C1; **tune ch FTA; NZ+Au**  
 Net 10, V8 racing  
 Big Pond; V8 racing  
 GlobeCast, NZ + Au (now PowVu capable)  
 09-04 unmodulated carrier; no data stream  
 occ feeds, NZ + Au  
 Competitor to TAB; FTA but not for long  
 NZ + Au (Mcrypt, PowVu capable)  
 Ex TARBS testing, retrying to restart! (09-04)  
 Ex TARBS testing, trying to restart! (09-04)  
 ABC WA tests, FTA  
 SBS, radio tests WA FTA  
 Irdeto V2 CA, tests (GWN, WIN)  
 new #s 09-04; \* - may be temp #s; on and off  
 new #s 09-04; \* - may be temporary numbers  
 Tests, not always operational; **SBS FTA 03-09-04**  
 NZ (90cm) + Australia (**Only svc left on NZ; C1**)  
 Australia NA only (leakage to Norfolk, New Cal)  
 Australia NA only (leakage); 9-Net x 3 widescreen  
 Arrow radio, tone FTA  
 Pay-per-view movies; CA  
 Pay-per-view movies; CA  
 Pay-per-view movies; CA  
 Austar inter; Expo FTA  
 NDS CA + Mcrypt; CA  
 CA, subscriptions available Australia, Norfolk  
 Sky News active; "Help" FTA  
 CA, subscriptions available Australia, Norfolk  
 CA, subscriptions available Australia, Norfolk  
 "Home" CA, subscription available Australia, Nrlfk  
 CA, subscription available Australia, Norfolk  
 CA, subscription available Australia, Norfolk  
 \* - plus 12.451H, 12.460H  
 \* - plus 12.293V, 12.402V, 12.411V  
 Full schedule less commercials - links; may be CA  
 Possibly feed to Tasmania?  
 PIDs vary; also try 12.360, 12.370  
 occ. digital feeds; typ fla  
 Often NTSC; USA-Australia-NZ  
 Also 12.420H same params; SBS HDTV + w-s  
 FTA 4 channels (TVNZ x 4); +Maori here  
 testing digital feeds; Sr may vary  
 NDS CA, subscription available NZ  
 NDS CA, subscription available NZ  
 NDS CA, subscription available NZ  
 also 12.626, 643, 670, 688, & 706H  
 NDS CA, subscriptions available NZ  
 Radio SCPC is "cover" for high speed data  
 FTA, plans CA "soon"  
 June 2002-Irdeto-2 CA  
 Dateline west; also east PAS2, 3901V  
 PowVu CA  
 Tests - CA service announced  
 PowVu CA & FTA; subscription available  
 was PAS-2, previously 3992Vt; **feeds FTA**  
 NET25 + FTA; new PIDS April '03, reload  
 PowVu CA; ch 11 DCP-CCP bootload; audio FTA  
 PowVu/CA (some audio FTA)  
 PowVu CA & FTA (EWIN +)  
 NDS CA (6 channels); one test card FTA  
**Myx FTA** V1960, A1920 + radio FTA  
 Mixed FTA & CA; STC gone (CA)  
 PowVu FTA, replaces PAS-2 svc  
 Difficult because of CCTV cross pole  
 was As2; PowVu CA  
 PowerVu; some audio FTA  
 PowerVu; Asian MUX; new parameters Nov '03  
 # 8 **MTV China FTA V289, A290**; test CA  
 PowVu CA, WIN, ABC NT, SBS; status unknown  
 Test - may not stay permanently  
 Temp FTA; will be CA, subs 011-800-2270-0722  
 May not be permanent; not available to NZ  
 Occ FTA (Chile +); BIG power reduction Nov 03  
 Sporting feeds from USA (occasional)  
**Irdeto 2 CA - subscriptions avail; Strong Tech**  
 PowVu (FTA) occ sport feeds inc. Japan BB  
**BBC, test card FTA**, others nominally CA



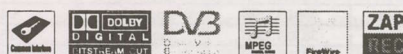
**homecast** eM200



Digital Satellite Receiver with 2 x CI slots.  
and Irdeto 2.09 CI cam.

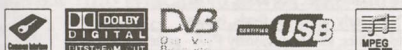
**SATELLITE**

**homecast** eM320PVR



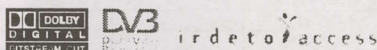
Satellite Receiver with Dual Tuner, firewire,  
and 44 hours recording with Irdeto 2.09 CI cam.

**homecast** eM300PVR

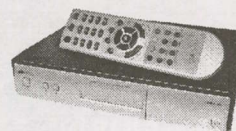


Satellite Receiver with CI slots & 22 hours  
recording with Irdeto 2.09 CI cam.

**homecast** eM150IR



Compact embedded Irdeto  
Satellite receiver with 1 card slot.



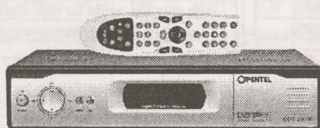
All the above receivers are suitable for receiving the Irdeto encrypted KU  
programming from **NSS6 satellite** with the appropriate authorized smart card.

**OPENTEL** Digital Terrestrial Receivers

**ODT3000F**

Standard definition,  
High quality. Full  
Featured including, RF modulator, S-Video  
out, Wide button, 8 favourite groups, SPDIF  
out, Competitive pricing.

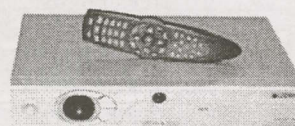
**Call for wholesale bulk pricing.**



**NEW! ODT4200PVR**

**80G PVR with Twin Tuners!**

SD with 40 hours recording.  
Record one channel while  
Watching another, Play a recording while recording  
a channel, 4 week event timer, 8 favourite groups,  
trick play forward & backward 1/2x, 2x, 4x, 8x & 16x  
speeds, Mark A&B points on your recording, Jump  
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Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS2/169E)	Adventists.tv	4040/1010H	1	2/3	5(.900)
	Feeds	3868/1182H	1	2/3	6(.620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(.620)/7(.498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(.800)
	HK bouquet	3850/1300H	up to 8	2/3	24(.900)
	Korean Bgt	3771/1379H	1	3/4	9(.041)
1804/174E	iPSTAR	12.619H	1	2/3	25(.220)
	Tests-NZ beam	12.646H	1	3/4	22(.418)
	RFO Poly	4027/1123R	1TV	3/4	4(.566)
1701/180E	TNTV	11.060&11.514V	9	3/4	30(.000)
	Fiji TV/Sky Pacific	11.074H	12 + 12 radio	1/2	43(.600)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(.000)
	PBS	12.728H	16TV possible	3/4	28(.066)
	TVNZ/BBC	4186/964RHC	1	3/4	5(.632)
	TVNZ	4178/972RHC	1	3/4	5(.632)
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(.680)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(.632)
	RFO-Canal+	4086/1064L	4TV, radio	5/6	12(.041)
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	TVNZ feeds	4044/1106R	1	3/4	5(.632)
	NZ Prime TV	4024/1126L	1	2/3	6(.876)
	NBC to 7 Oz	3960/1190R	1	7/8	6(.447)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(.000)
	Ioarana	3772/1378L	1	3/4	4(.566)
	NASA TV	3854/1296R	1 TV	3/4	2(.000)
	TVNZ	3846/1304R	1	3/4	5(.632)
	NBA (Barker) Ch	3803/1347R	1	3/4	6(.111)
	10 Australia	3769/1381R	4	7/8	20(.000)
	USA feeds	3749/1401R	4?	?	26(.400)
NSS-5/177W	Pacific IP Data	3745/1405R	none-date	3/4	44(.995)
	iPSTAR Tests	12.691V	8+ TV	5/6	17(.600)

# Receivers and Errata

New December 2003; 24/7 "Hope Chs."

FTA (occ sport); also try 3863, Sr6.100

FTA-tyt NTSC-occ sport, live Shuttle

PowVu CA + FTA (BBC gone)

was 4148Vt; some FTA

Korean MUX, reload 02/03

Tests, late May start; also 12.646H

Testing possible data links; June 2003

SE spot beam; was 4027LHC

east spot; 10TV + r each, vertical pol.

Here short-term (NSS-5 move); FTA + Nagravision 2

1+ FTA, MediaGd "2"; + 10.975 weaker

Testing Fiji region pay-TV package (Sept '04)

DMV/NTL early vers. occ feeds, typ ca

DMV/NTL early vers. occ feeds, typ ca

'DTS Direct to Sailors; audio previously FTA - gone

DMV/NTL early vers. occ feeds, typ ca

east hemi 20.5 dBw +; new Sr

DMV/NTL early vers. occ feeds, typ ca

SCPC, mixed CA and FTA feeds

PowVu CA; Auckland net feeds

CA, Leitch encoded

New PIDs Dec 03 very strong NZ, Pacific

FTA SCPC; East Hemi Beam-Tahiti

24/7 live space walks, conferences - West Hemi beam

SCPC, mixed CA & FTA, feeds

NBA feeds - probably CA - new Nov 2003

PowVu CA & TBN-JCTV FTA

16-QAM (not MPEG-2 compatible)

Data only but useful for dish alignment, top Sr check

Tests - TV but only temporary; data coming (NZ)

## MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept '99. AV-COMM P/L 61-2-9939-4377.

AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.

AV-COMM R3100(A). FTA, good sensitivity, ease of use exc (review SF May 2002). See above contact.

Coship 3188C. Review SF#107. Blind search FTA rcvr; works well. Available from Satlink NZ [www.satlinknz.co.nz](http://www.satlinknz.co.nz). (ONLY KNOWN DISTRIBUTOR IN WORLD)

Divitone: "Left-handed" review SF#115; does "code key" entry. Available <http://www.satmax.ws>

eMTECH eM-100B (FTA), eM-200B (FTA + Clx2), eM210B (FTA + 2xCI + positioner); KanSat 61-7-5484 6246 (review SF#89)

Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 CI. Review SF#119. [www.aDigitalLife.com](http://www.aDigitalLife.com)

Humax ICRI 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.

Humax ICR 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq ([www.sciteq.com.au](http://www.sciteq.com.au)).

Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good. SATECH (V2.26)

Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.

Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

INNOVIA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix Technologies, and Satmax (<http://www.satmax.ws>).

ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.

MediaStar D7. FTA, preloaded w/ known services, exc. software (review SF July 1998). MediaStar Comm. 61-2-9618-5777

MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777

MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.

MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738

Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.

Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 ([www.satworld.com.au](http://www.satworld.com.au))

Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced; Sept 18 (2003) "drop-dead" day; all were to have been "turned off" on that date (in fact, those with V1.13 CAMs may still be working; still does radio including CA, not TV).

Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).

Phoenix 111, 222. PowVu capable, NTSC, graphics, ease of use. (111 review SF#57). SATECH (below)- 222; terminated

Phoenix 333. FTA SCPC, MCPC, analogue + dish mover. Detailed SF review SF#51. SATECH 61-3-9553-3399.

Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal +687-43.81.56)

PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).

PowTek. Blind Search Chinese sourced, field tests rate it highly. Source [jason@adigitalLife.com](mailto:jason@adigitalLife.com)

Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.

SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-2749); no longer available.)

SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.

SATWORK ST3618. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).

Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superseded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin

Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).

Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.

Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSEqC 1.0, 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.

UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.

UEC642. Designed for Aurora (Irdeto), approved by Optus; w/new software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.

UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel, limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.

UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.

Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teletext problems (loses TT).

"X" Digital. When modified with "aftermarket" Internet software, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

**Accessories:**

Aurora smart cards. MYCRYPT (Irdeto V2) cards now available (Oct. 2003), Sciteq 61-8-9409-6677.

PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

PowerVu (Pacific) repair service: Cable & Sat Svcs. Darius West. 61-2-9792-1421 (Email [darius@cases.net.au](mailto:darius@cases.net.au))



# WITH THE OBSERVERS

## AT PRESS DEADLINE

NSS-5 Fiji TV yes - but not October 1.

This satellite requires modifications to the newly installed uplink equipment (currently configured to 1701) and special "filters" which must be manufactured, shipped and installed. Likely start date? A "window" from October 20 to November 30.

**ApStar 5/Telstar 18/138E:** "Hong Kong Cable appears to be using Ku band transponders for proposed 30-40 channel service into Macau, Taiwan and surrounding areas. 12.598V + 12.720V, Sr 43.000, 3/4 testing (Nagravision). (JJ, Thailand) "Chinese CCTV possibly in high def noted 12.476V, Sr 41.250, 1/2." (NM, Taiwan)

**AsiaSat 3/105.5E:** "Indus-Plus is new FTA 3760H (Now mux, Sr 26.000, 7/8)." (Archie) "Six radio channels, FTA, and Yemen TV have been added to 3880H (AbuDhabi mux; Sr 27.500, 3/4) - all Arabic." (KK)

**AsiaSat 4/122E:** "Test card, erratic video 12.333." (James, Indonesia) "12.333V, SR 5.878, 3/4, right at threshold on 76cm. One report is that this will be a mux for Australia (Australian DTH Services) through Sydney Teleport Services and Sydney Film & TV Studios - possibly using some channels previously carried by TARBS." (CraigS, NZ) "Signal registers 94% level on 1.2m home brew segmented dish in far north Qld." (Vick) "Several previously internal-only (i.e. Beijing Opera) channels testing 4020V (Sr 27.500, 3/4 but Irdeto 2 CA); also see 4100V same Sr + FEC numbers for another set of newly available Chinese services, some FTA early September." (Larry L, Qld)

**Intelsat 701/180E:** "Canal + lower transponder (10.975H) has broken ranks with upper (11.610H) and is now as strong as upper. There is a seasonal cycle on this one reaching peak average levels in January-March, lowest August which a purposeful intercession now seems to have upset." (Francis, NZ) "PBS (Pacific Broadcasting Service) moved from 12.691H to 12.728H, Sr 28.066, 3/4 - same beam pattern as Canal +?" (Richards, SA) "I will miss Fiji TV when they switch to NSS-5; during testing here (11.074H, Sr43.600, 1/2) they have been running many normally CA channels FTA; such as ESPN2." (DM, NSW) "NASA-TV is 24/7 with absolutely fascinating live and tape delayed coverage of space walks, exploration of the cosmos - anything that will turn-on a space junkie! The symbol rate (3.854, Sr 2.000, 3/4) is however a test for many receivers and the video quality is adequate but hardly brilliant." (GC, Sydney) *(Editor's note: It is RHC and a linear feed typically will not make the grade; also West Hemi beam which means east of 180E are out of luck.)* "How do we encourage NASA-TV to switch to FEC 1/2? That would make reception on smaller dishes much more friendly and help offset the need for circular [RHC]

## AFRTS PROGRAM SCHEDULE

Wednesday-August 11, 2004

12:00 am GM America-L

2:00 am Pardon The Interruption

2:30 am Unauthorized Program

6:00 am SportsCenter-L

7:00 am NFL Live-L

7:30 am NFL Yearbook-L

**IR SERVICE PH# 699-1**

Oddity. AFRTS (American Forces Radio & Television Service) is broadcast to the public of American Samoa (and portions of Western Samoa) 24/7 through Pago Pago TV channel; normally tightly limited to military personnel, installations. No, there is no "military base" link - just a public service!

modified feeds?" (IF, Qld.) *(Editor's note: Try their web site and linkage: <http://www.nasa.gov/multimedia/nasatv/>.*

**Intelsat 804/174E:** "3873LHC, Sr 6.110, 3/4 NHK feeds." (DLeach, NSW) *(Editor's note: 804 bird recently replaced 802 and location moved from 176E - 802 drifting west.)*

**NSS-5/177W:** "BestTV tests 12.691V, Sr 17.600, 5/6 with 2 Taiwanese channels FTA." (CSutton, NZ)

**NSS-6/95E:** "Currently active to Australia: 11.083H Ant Pac (Greek) Sr 2.171, 3/4; 11.106H TVR Int Sr 3.255, 3/4; adult+ mux 12.729V Sr 27.500, 7/8." (Gerald, NSW)

**Optus B3/160E:** "United Broadcasting International/UBI: has put to air (T15L - 12.674H, Sr 22.500, 3/4; T15U - 12.704H, Sr 22.500, 3/4; possibly high performance beam?) just about everything imaginable off the air for a few hours to a few days. T15L typically has 8-10 channels, Middle Eastern + Chile; T15U with up to 10 channels, many test cards or text message warning viewers this is not a permanent service (yet!) *("This is a temporary test signal for United Broadcasting International. Please be advised NOT to purchase any equipment and that there are no U.B.I representatives authorised to offer any of these services.*

**WITH THE OBSERVERS:** Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady.

Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for October 15th issue: October 3 by mail or 5PM NZT October 5th if by fax to 64-9-406-1083 or Email [skyking@clear.net.nz](mailto:skyking@clear.net.nz).



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You are welcome to also visit our showroom (24/9 Powell's Rd, Brookvale NSW),  
join our E-mail newsletter service ([addme@avcomm.com.au](mailto:addme@avcomm.com.au))

(Av-Comm Pty Ltd ACN 004 174 478)



These firms are available to do contract dish installs

**Fiji Islands**

C.B. Communications, **Sigatoka** (Ph6520227; [sbcom@connect.com.fj](mailto:sbcom@connect.com.fj)) (\*)

Safeway Electronics Ltd, **Suva + Lautoka + all islands** (Ph 3395300/6666822; [safeway@connect.com.fj](mailto:safeway@connect.com.fj))

SATSHEK Communications, **Suva** (Ph3307933; [parmarbros@connect.com.fj](mailto:parmarbros@connect.com.fj)) (\*)

**New Zealand:**

Tauranga TV Svcs Ltd, western **Bay of Plenty** (ethnic Ku packages) (Ph 07 578 7276; [dave-tts@clear.net.nz](mailto:dave-tts@clear.net.nz))

Raycom, **Coromandel Peninsula/Waihi/Tairua** (B1 FTA) (Ph 07 864 8083; [raycom@slingshot.co.nz](mailto:raycom@slingshot.co.nz))

Frontline Electronics, **Mosgiel** region (ethnic Ku packages) (Ph 03 489 4001)

Advanced Aerials, **Napier/Hawkes Bay**, comcls (Ph06835 6618/021 272 6618; [advanceaerials@xtra.co.nz](mailto:advanceaerials@xtra.co.nz))

Nelson TV & Video Svcs, all **Nelson Bays** (Ph 03 548 0304; [ntv@tasman.net](mailto:ntv@tasman.net))

Rexels AV Electronics Ltd, **Palmerston N, Manawatu, Hawke's Bay, Wanganui** (Ph 06 357 6186;

[rlblair@infogen.net.nz](mailto:rlblair@infogen.net.nz))

The Antenna Man, **Taranaki** (Ph 06 758 1633; [antenna.man@xtra.co.nz](mailto:antenna.man@xtra.co.nz))

Quality Pics, entire **Waikaito** region (Ph 0800 007 667; [maxnkay@xtra.co.nz](mailto:maxnkay@xtra.co.nz))

Smartzone, **Wellington-Wairarapa-Palmerston N** (C+Ku) (Ph 029 289 6333; [info@smartzonesystems.co.nz](mailto:info@smartzonesystems.co.nz))

Homestead HiTech, **Wellington, Masteron-Levin** (PAS-2, B1, B3) ([fitzgera@ihug.co.nz](mailto:fitzgera@ihug.co.nz))

Waipu Cable Television, **Wellsford to North Cape**, (Ph 09 4320 973; [waipucable@xtra.co.nz](mailto:waipucable@xtra.co.nz))

John Stewart, **southland** including Otago ([john.s@tritec.co.nz](mailto:john.s@tritec.co.nz))

**New South Wales:**

Woolgoola Antenna Service, **Coffs Harbour** (50km radius) (Ph 0266561889; [woopaerials@iprimus.com.au](mailto:woopaerials@iprimus.com.au))

Town & Country Antennas, 60km radius **Murwillumbra/Tweeds Heads** (Ph 02 6672 8595)

Newcastle Satellite, **Newcastle + Lwr Hunter Vly** (Ph 0249614449; [satellites@netcentral.com.au](mailto:satellites@netcentral.com.au))

Home Satellite TV, 40km radius **Port Macquarie** (Ph 02 6584 3838; [kazbah25@optusnet.com.au](mailto:kazbah25@optusnet.com.au))

Goodcom Communications P/L, 100km radius of **Walcha** (Ph 02 6777 1044; [goodcom@northnet.com.au](mailto:goodcom@northnet.com.au))

**Queensland:**

Cape York Electronics, **Cooktown and "the cape"** (started 1970s) (Ph 07 40 695 252; [cyeectn@tpg.com.au](mailto:cyeectn@tpg.com.au))

Phil's Antenna Systems, 100km radius of **Hervey Bay** (C+Ku since 1996). (Ph 0741 256 273)

Rick Dalton TV & Satellite, 100km of **Kawana Waters** (C + Ku). (Ph 07 5493 4343; [rick@antectv.com.au](mailto:rick@antectv.com.au))

**South Australia**

Central Eyre Comms, **Arno Bay-Eyre Penins.** (Ph 08 8628 0203; [centraleyrecomms@ozemail.com.au](mailto:centraleyrecomms@ozemail.com.au)) (\*)

**Tasmania:**

.65 Electronics, **Launceston and Northern Tasmania** (Ph 03 63 330820; [sales@65group.com](mailto:sales@65group.com))

**Victoria:**

Riviera Satellite Antenna Svcs, 100km radius **Bairnsdale** (Ph 03 5152 4884; [gilhooleystv@net-tech.com.au](mailto:gilhooleystv@net-tech.com.au))

Leden Communications, (100km radius) **Glengarry** (Ph 0427 745105; [leden@netspace.net.au](mailto:leden@netspace.net.au))

Geoff's Communications, 60km radius **Korumburra** (Ph 0408 582010; [gwyhoon@tpg.com.au](mailto:gwyhoon@tpg.com.au))

Foreign Satellite TVP/L, **Melbourne (region)** C+Ku since 1995 (Ph 040445509; [joe12@dodo.com.au](mailto:joe12@dodo.com.au))

**Thailand:**

JSAT tv/Jon Clarke, **ex-pat community - nationwide** (Ph +661 513 5418; [info@jsat.tv](mailto:info@jsat.tv)) (\*)

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(\* - NEW or modified this month.)

*Announcements will be made when the services become available.")* (IF, Qld) "Globecast has added capability to transmit PowerVu CA in addition to Irdeto V2 T7/12.527V, Sr 30.000, 3/4." (AI, NSW) "Australian Christian Channel new 1 September 12.525V, Sr30.000, 2/3 in Globecast mux (V2981, A2082, PCR2081). 'ETV' has returned with different SID and PMT/PIDs (new are V2091, A2092, PCR2091 - will have to be reloaded)." (IF, Qld) "T12, 12.501H, 30.000, 7/8 still has no NIT or PAT (channel loading table)." (NS, NSW) "GWN News backhaul feed (12.460H, 6.670, 3/4) has been operating at reduced power or may be shut down - but power increases on weekends when other users are here for feeds." (ER, NSW) "Country music fan? Try 12.525V, Sr 30.000, 2/3 - load radio channels and this one (FTA) is the last one to load." (Barry, NZ) "ABC NT, WIN and GWN apparently gone from 12.689H." (Howard)

**Optus C1/156E:** "Imparja has changed channel identifier for Aurora second channel (T6/12.527V, Sr 30.000, 3/4) from 'Info Ch. 31' to 'ICTV'." (IF, Qld) "Did Foxtel/Austar miss out on what they hoped was to be Athens coverage? In June, they established 12.367V (Sr27.800, 3/4) with four channels ('gc1>gc4'). The Nokia DVB2000 software using the broadcaster's 'content information' which appears in the extended EPG included on FB05 and FB06 (T8, 12.607V) 'Special event (Olympic/World Cup) and on FB24, 'Equestrian'. Alas, Only 7 Net and SBS ('Complimentary Coverage') actually delivered during Olympics." (NS, NSW)

**Palapa C2M/113E:** "Kabelvision mux, largely test cards, 3500H, has changed Sr to 27.000 (FEC 3/4)." (Billy, NT) (Editor's note: Also check 3580H, sometimes Nagravision.)



**PanAmSat PAS8/166E:** "Filipino radio services (DZMM, WRR) have been added to ABS/CBN bouquet 12.575H (Sr13.845, 2/3)." (BRichards, SA)

**Thaicom 2-3/78.5E:** "3600H, Sr 26.667, 3/4 encrypted Irdeto 2; early had 3 FTA test cards including 'KTN' and 'Thai Global Network'." (BRichards, SA).

**Soapbox:** "Sky NZ is now profitable with reasonably large numbers - over \$35m for year ending June 30. They plan to enter DVD rental biz, charging a flat monthly fee and sending to DVD-subscribers some set number of newly released films each month. Sky's own movies are presently available in theatre-store rental-pay TV on demand- followed by Sky Movies 1 (etc) general showing. Rental DVDs will compete directly with store-rental 'time window' whereas present pay-TV-on-demand timing makes films available 30-60 days ahead of general pay-TV showing. It is all about when you get to watch a recent movie." (Benjamin K, Auckland) "Not exactly satellite but close. Harvey Norman (NSW) offering (A\$1299) 'Ultimate Pocket Music and Video

### The "race" for AustralPacific viewers

1701:

**Canal-Plus/ 11.610 & 10.975H** (Sr 30.000, 3/4) New Caledonia beam (inc. eastern Australia) FTA and CA (Mediaguard-2).

**Fiji TV/11.074H** (Sr43.600, 1/2) New Caledonia beam (inc. eastern Australia); FTA but will be NagraVision 2, and moving to NSS-5 (frequency not announced) on or about 1 October.

**PBS/12.724H** (was 12.691H) (Sr 28.066, 3/4) New Caledonia beam, FTA testing reported.

**Optus B3:**

**UBI/12.674H & 12.704H** (Sr 22.500, 3/4), Australia high-performance beam(?); FTA testing.

Player/Recorder'. Built-in colour LCD, 20GB hard disk drive, allows user to record and take with them TV programs, movies from TV or VCR + MP3, WMA, WAV files; internal rechargeable Li-Ion battery." (AI, NSW) "Some Sydney groups have been successful in getting 900/1800 MHz cell fone sites moved away from schools and densely populated areas. Perhaps concerns about microwave radiation will prompt similar outcries over the UNwired sites now popping up around Sydney?" (NS, NSW) "Term IRD? Pace built an IRD50, an older analogue receiver with Cryptovision decoder. Pace originally called their initial digital units DGT which is DiGiTal abbreviation. UEC called their first model the IRD 642 and the training manual for it cites it being an 'Integrated Receiver/Decoder'. When the 660 and 700 versions came out, UEC called them DSD660 and DSD700 (Digital Satellite Decoder). I suggest to avoid confusion all digital receivers might be termed 'DSR' while all analogue (if there are still any left!) 'ASR'. (IF, Qld)

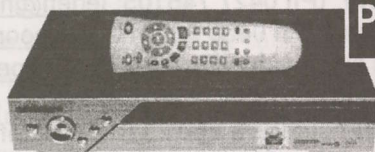
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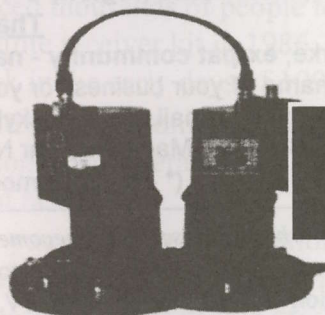
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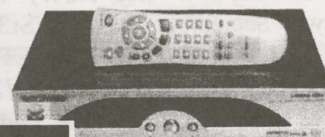


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The world's factory, China, is truly having a remarkable affect on our planet. The clothing we wear, the hardware we pound, the electronics we adore and much more carries a "Made in China" label. When they begin copying the Holden Commodore you will know the end of local industry is near.

So too the satellite industry, during the last five years, has been forced into major adjustments for the hardware we all crave to chase the sport of exotic TV reception. Have you noticed the pricing? AUD\$250 retail for a 2.3m mesh dish? Consider making one yourself - twice as much as this in labour alone. How can they do it? How can something the Americans first perfected ten years ago that cost thousands of dollars initially now be manufactured and sold so cheaply? Remember - the factory makes a profit, the freight company makes a profit, the distributor makes a profit and the dealer makes a profit. AUD\$250 retail? It comes in at around AUD\$100 for the Chinese manufacturer!

"Cheap?" How about "cheap AND nasty???" Every day customers ask me, "What is the best LNB? The best receiver? The best dish?" My answer is, "it depends upon your budget." And, I add, and end with the comment, "Remember - we usually get what we pay for - nothing more, nothing less."

The trend, thank-you China, is towards cheap, at least in Australia. This aggrieves me - not because I make less money on "cheap and nasty" but because it is a rare customer indeed who even considers performance (or service) beyond the warranty period. Assuming there is a warranty period!

The European market for satellite hardware is massive, a hundred or two hundred times larger than our minuscule subset. One would assume (incorrectly) that in such a huge market there would be a place for "cheap and nasty." *There is not.* European satellite buyers caress the dish, fondle the LNB, ask intelligent long-term questions about the longevity of cable and connectors. They are educated, "smart" buyers. So why are *our* buyers so hung up on price???

The "cheap AND nasty" 2.3m will work, on day one, day 30 and if fortunate on day 90. Beyond that - the buyer is in never-never land. Bolts rust, mesh weakens, the dish to mount hardware gives way to wind and gravity and less than perfect engineering. That's the reality of "cheap AND nasty." And the signals begin to falter resulting in a service call. *OK* - start by replacing the companion "cheap AND nasty" (Chinese manufactured) LNB. When that fails to correct the reception, move on to the receiver - also "cheap AND nasty." And the performance is still sub-day-one. And that leaves? The "cheap AND nasty" *original* 2.3m antenna!

One of my competitor's customers, desperate to revive his failing system, actually went to the effort (and expense) of covering his 2.3m "cheap AND nasty" mesh dish with galvanised sheeting, hopeful that would get him back to

where he began with full lock and acceptable pictures. It did not - he overlooked that the structural integrity of the dish (the "sagging dish syndrome" which is similar to what happens to a lady's breasts during her "30-something" years) was not repaired with reskinning; rather, it became worse because the sheeting was too heavy for the struts and mount.

In desperation, the consumer finally agreed to upgrade to a Korean manufactured receiver - which, with improved sensitivity, provided a quick-fix stop-gap solution to his unlocked signals; even with a "sagging dish."

"Cheap AND nasty" is without exception "Quick-to-Fail." For example, American design, European *design* receivers seldom (if ever) elect 10V capacitors for a 10 volt rail - they wisely select 15V or higher simply because over time all components degrade in specification. When a 10V rail power supply capacitor ages and becomes a 9V capacitor, it fails. Every time. Chinese made items push the very edge of all specifications, subject only to "full performance *when new*," without respect to what may happen 3, 6 or 12 months down the road. Unfortunately, pushed by commercial reality and the Chinese rock-bottom pricing, of late even the Koreans (who heretofore have been known to respect degradation over time component failures) have been forced to lower their standards as well. It is a commercial reality that the cheap AND nasty will sooner or later rule the world - *as long as the consumer remains uneducated*, and conscious only of the price he initially pays for his "super-duper" system.

European, and I suspect but do not know, American buyers are smarter. Why? Possibly because there are consumer satellite magazines, web sites and data bases available which allow them to carefully research their purchases *before* they buy. Information is power, even in the satellite world.

Many satellite dealers - the folks who make the actual consumer sale - are quick to defend their "stocking" choices (which dish, LNB, actuator, receiver) by price and price alone. Everyday I hear excuses, such as, "My customers will not pay for quality." *Education.* Retail consumers who select product on price alone are uneducated, "cheap AND nasty" customers. They exist out of ignorance, which is the opposite of being European or perhaps American.

Consumers shop. They look for pricing and pricing alone, a part of our "heritage." We can and must do better. At the very least, the "installing dealer" should at a minimum offer (and stock) one complete up-market system. And as a "salesman" you should explain WHY one system costs more than the other - call the cheap AND nasty an "entry level" system for people who are not that serious about a quality image that does not falter when the wind blows or clouds cover the sky.

And be frank about service. "Cheap AND nasty" comes with a 90 day guarantee while "superior quality" carries a 12 month guarantee. Justify the increase in cost with a logical, honest explanation that quality costs more and lasts longer. That's why Holden offers a Commodore and a Statesman. And that's why you should offer, as a minimum, two levels of system. Yes, perhaps only one customer in ten will opt for the "statesman" dish system but you will have at least provided a choice and an honest recitation between "cheap AND nasty" and "quality." If you do not even *offer* a "statesman" system, you are reduced to selling on price alone. And you will, as often as not, lose the sale to somebody in the next town who is willing to cut \$25 from *his* pricing.

Selling home dish systems is a business and as such it requires more than cheap pricing. Think about it.



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**Hard Core (seriously SERIOUS!) "How to do it" References**

- ☐ **UHF 20' Parabolic:** For a few hundred dollars in materials at the local lumber yard, you can build a 20+ dB gain UHF parabolic capable of providing "scatter region" reception to 300km! \$15 all regions.
- ☐ **Surface Wave 40+ element "yagi"** format single channel antennas. Stack 'em! Designed by the legendary Oliver Swann, this is the biggest, highest gain single channel VHF-UHF antenna ever created. Oliver routinely used them for 600km reception. Not for careless folks. \$10 all regions.
- ☐ Tech Bulletin 9402: **MATV** (master antenna terrestrial) systems - wiring up a home, motel, hotel, camp grounds from one set of antennas - \$15 all regions.
- ☐ Tech Bulletin 9404: **Home Satellite Dish Systems.** "Newbie" trying to work out what all of those funny terms mean and how a home system goes together? Perfect. \$15 all regions.
- ☐ Tech Bulletin 9405: **Satellite to Room Systems.** Combining MATV (TB 9402) with satellite (TB 9404) to distribute satellite TV to multiple outlets - 2 to 1000+! \$15 all regions.
- ☐ TB9301: **Terrestrial Antenna Systems** to eliminate co-channel interference, stack for additional gain. \$15 all regions.
- ☐ TB9302: (Terrestrial) **Weak Signal Techniques;** off air reception to 300km+ using conventionally available equipment. Seriously detailed. \$15 all regions.
- ☐ TB9304: **UHF - Big Antennas** for 300km+ Reception over terrain! Professional. \$15 all regions.
- ☐ TB9305: **Cable TV** - the basics. How a cable system works, how to build one! \$15 all regions.
- ☐ **Nelson Parabolic Manual.** Step by step allows you to build satellite dishes with high accuracy to 13' - 4m diameter. Nelson was the very best and his techniques have stood the test of time. \$15 all regions.

**SOFT CORE - recent back issues of SatFACTS (while supply lasts)**

- ☐ SF#93 (May 2002). **European Piracy**, hundreds of web sites detailed - \$10 all regions
- ☐ SF#96 (August 2002). **Nokia BDM;** faster channel zapping. \$10 all regions.
- ☐ SF#97 (September 2002). Turning **FatCAMS** into Multicams. \$10 all regions.
- ☐ SF#100 (December 2002). **d-box2** BIG report. AC3 surround sound. \$10 all regions.
- ☐ SF#101 (January 2003). **d-Box2 conversion** to LINUX operating system. \$10 all regions.

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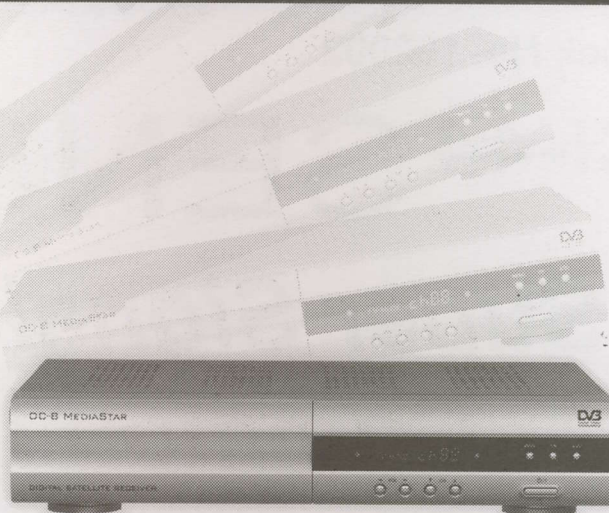
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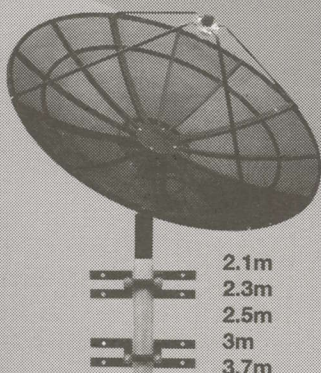
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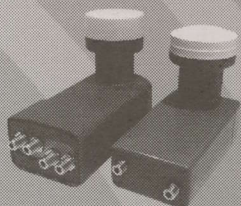
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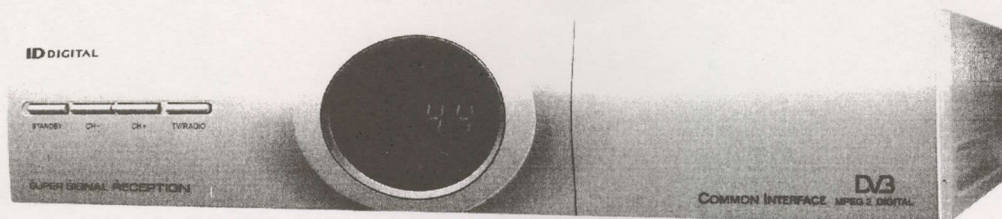
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